

LIFE

IN THIS ISSUE

AMERICA'S ASSETS

MORE THAN 50 PAGES OF PICTURES



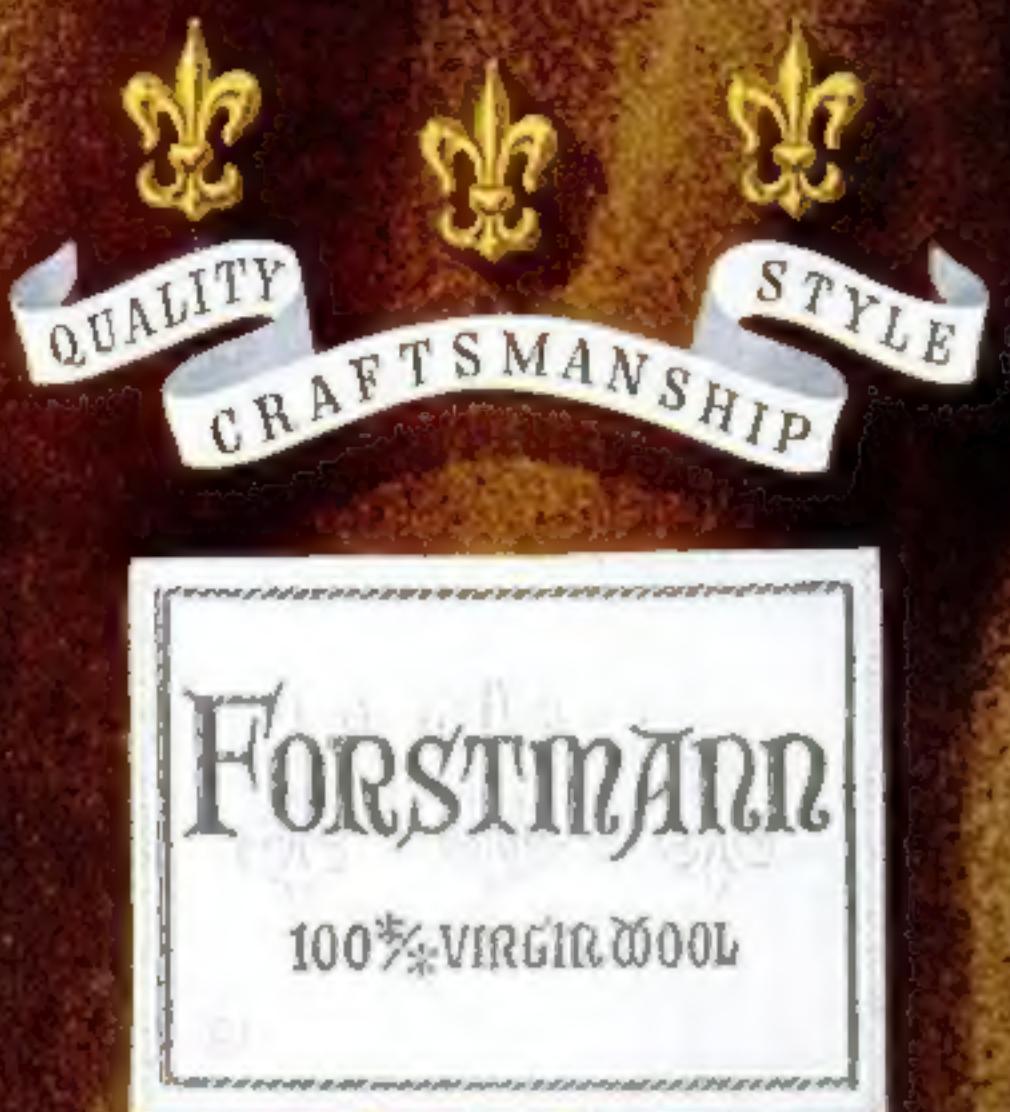
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BOSS OF WAR
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20 CENTS

JANUARY 1, 1951

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*Big economy size Ipana
saves you up to 23¢*



decay. And no other leading tooth paste is specially designed to stimulate gum circulation—*promote healthier gums*.

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From the play written by MARY CHASE and produced by BROCK PEMBERTON • Screenplay by MARY CHASE and
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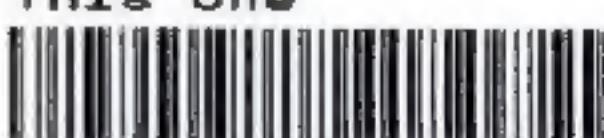
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I'LL SHOW YOU HOW IT PAYS OFF.

Without overdrive



With overdrive

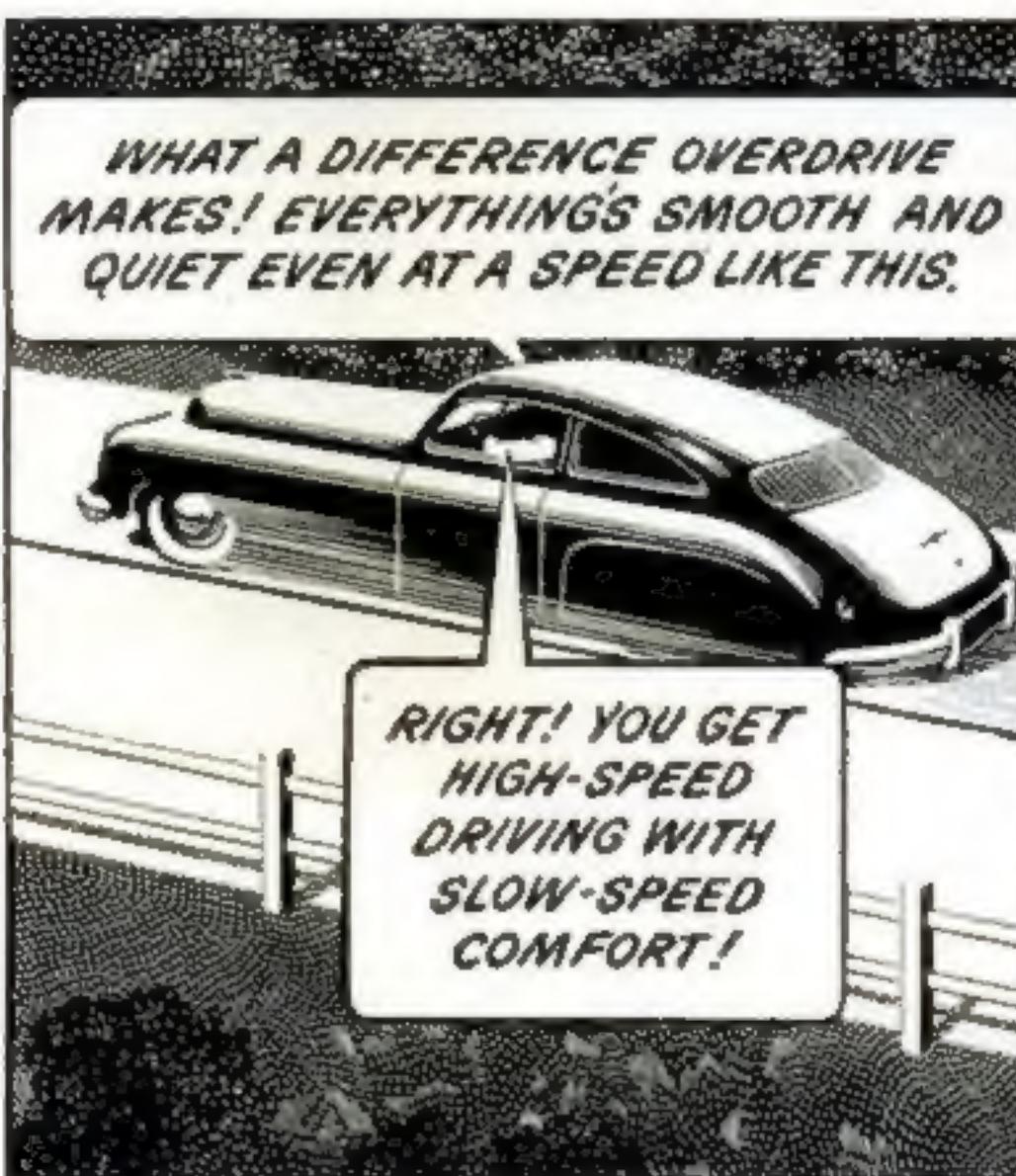
Lets engines stride instead of scurry
With overdrive the engine runs 30% slower



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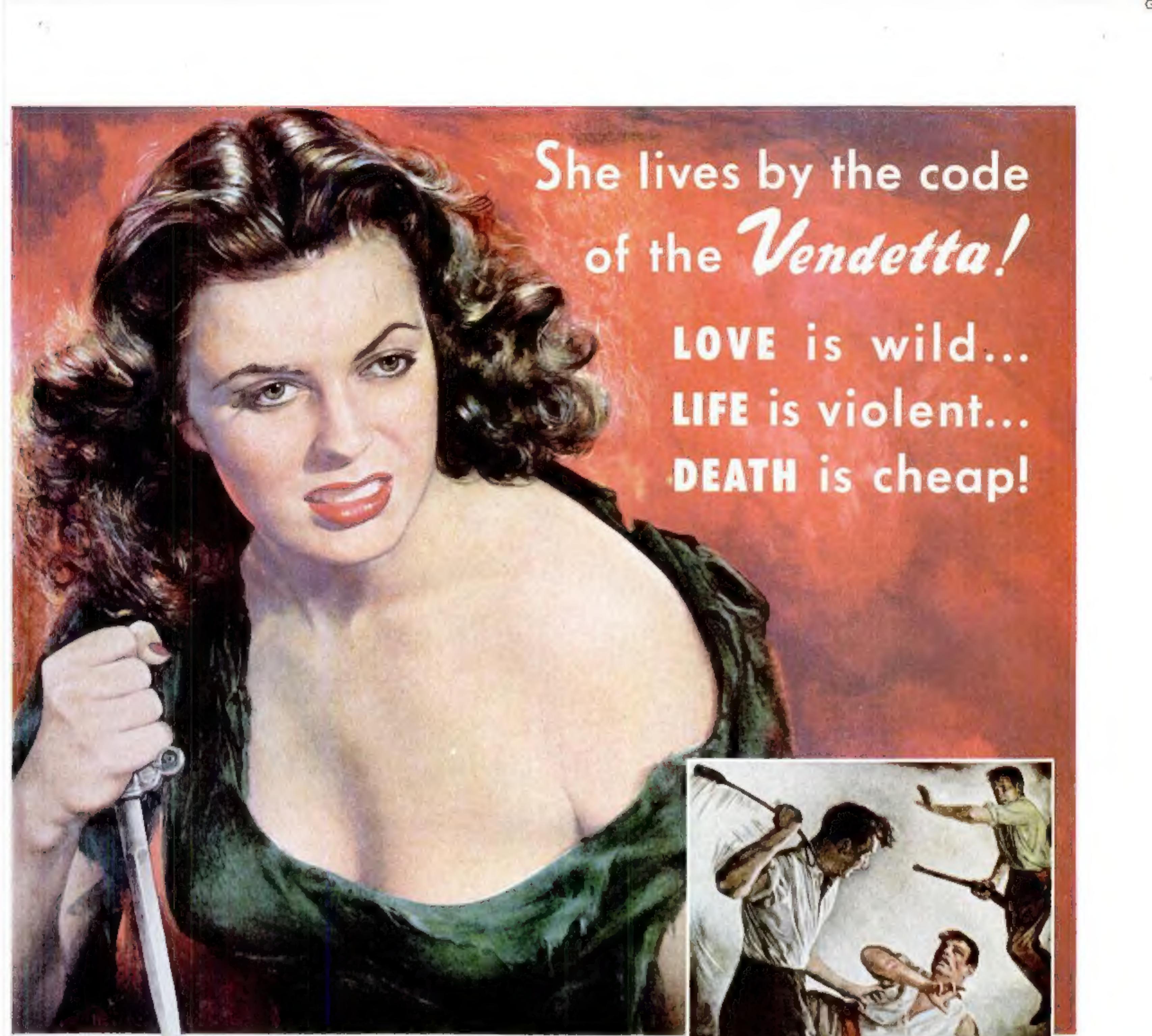
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Vendetta

starring **FAITH DOMERGUE**

and introducing **GEORGE DOLENZ** with **HILLARY BROOKE** • **NIGEL BRUCE** • **JOSEPH CALLEIA**
HUGO HAAS • **DONALD BUKA** • Directed by **MEL FERRER** • Screenplay by **W. R. BURNETT**





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"Scotties," "Soft as old linen," Reg. U. S. Pat. Off.

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LIFE'S COVER

Charles E. Wilson, who last week took on the most critical job a President ever has entrusted to one person, is a product of New York's tough "Hell's Kitchen." He went to work at 13, taking a job as office boy in a company later absorbed by General Electric. Forty years later his ability to master complex problems and make decisions earned him the presidency of G.E. He brings to his new task not only the wisdom of a lifetime spent in increasing production but a knowledge of Washington bureaucracy and machinery. As executive vice chairman of WPB in World War II he was the directing force behind the industrial might that clinched victory.



ARNOLD NEWMAN

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from discomfort of

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Whenever you're headachy,
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indigestion—take sparkling
ENO quick! You'll promptly
help neutralize excess stomach
acid, ease "full feeling" over-
night! When you wake, take
ENO as a quick-acting laxative. It
offers positive, yet gentle re-
lief. Used by millions. At all
druggists—buy today!

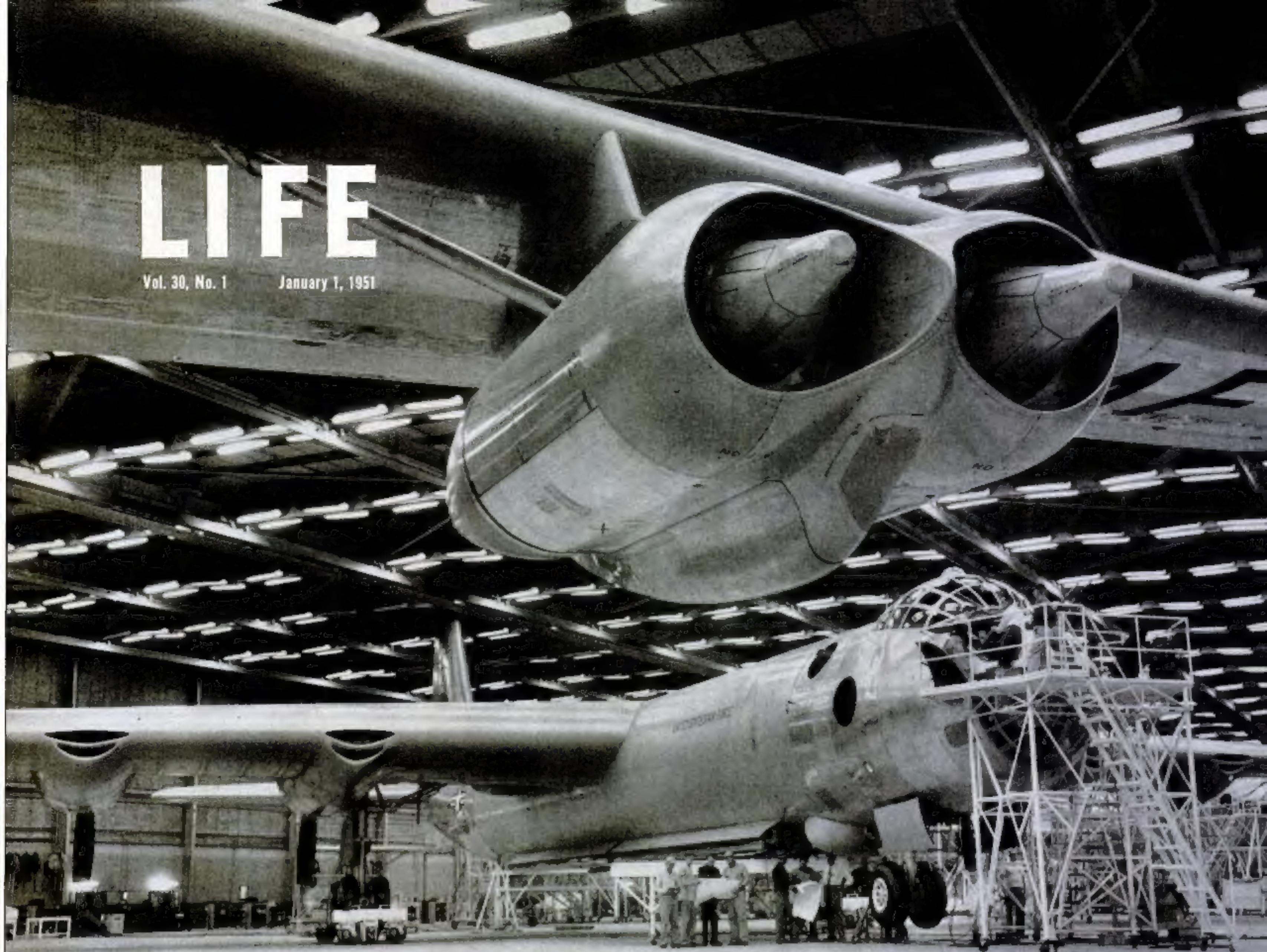
1 ANTACID—relieves sourness, gas
and heartburn promptly.

2 LAXATIVE—to relieve temporary
sluggishness quickly, take before
breakfast when needed.

3 PLEASANT—as a glass of spar-
king, bubbly soda water!



Take
Good-tasting ENO



U.S. REACHES FOR ITS ARMS

Once again, not with the trumpets' blare but with the tooth-jarring rattle of rivet guns and the hated screech of noncoms' whistles, the U.S. heard the call to arms.

For the third time in a generation, the country and the civilization for which it stood faced the gathering storm of a world war. For the second time in a decade, troubled and reluctant, it entered a state of emergency. And for the first time in its mature life America faced the prospect that its own, its native land would become a battleground.

Ten years ago this week, in a parallel moment of peril, Franklin Roosevelt delivered his "arsenal of democracy" speech. Facing the isolationists and appeasers at home and the aggressors abroad, he called on the country to make "great effort, great sacrifice" and to "discard the notion of 'business as usual.'" The country did, although it took Pearl Harbor to finally throw that notion into the discard.

Last week, in peril at least as great, Harry Truman called on the country to make new efforts. The Administration moved belatedly and too tentatively, but some motion was dis-

cernible. The President did not yet appear to realize that this time the people were ready and eager to do more than had been asked of them.

The time was at least as late as in the crisis of a decade ago, for in Korea we had already suffered far more casualties than in the Pearl Harbor of World War II. The U.S. was at least as badly outgunned and outnumbered as before. Were the assets it could bring to bear against the threat as great as before?

In forces-in-being we were, as is usual with us at such times, woefully weak. But in many ways we were strong. In 10 years our industrial capacity had grown 73%, and our capacity was flexible and convertible—from mighty General Motors (pp. 56-68) to the tiniest machine shop—for making the sinews of war. With only 7% of its population and only 5% of its land area, we had half of the world's production. This production had not only given us five golden years of the greatest prosperity ever but had also spilled out \$42.5 billion for the rest of the world. We had exploited the life-giving as well as the death-dealing powers of the atom (pp. 22-35). We had pushed our steel production close to

100 million tons a year, thrice Russia's capacity. Soon, using these capacities, we would be multiplying our production of planes, tanks and guns for ourselves and our allies. While we could not hope to win a war by numbers, we might hope to win by superior weapons created by superior imagination, for in human resources we were strong too. Those resources—represented as much by West Coast youth (pp. 45-52) as by Defense Mobilizer Charles E. Wilson (pp. 16, 17)—we could pit against any on the globe.

As for our spiritual assets, they can only be tested in time of crisis. We are a secular and often a seemingly impious nation, yet in churches such as those shown on pp. 80-87, our religion plays a vital role in community life. Against the force of Communism we still have faith that the force of Christendom, arrayed with the other great religions of the world, will prevail.

Such are America's assets. The country is not yet committed to their total mobilization because it has not totally abandoned all hope of peace. But if it uses its assets wisely, and is not smug about its liabilities, the U.S. can meet the challenge—for the resources are there to do it.



B-36 ASSEMBLY is stepped up in big plant at Fort Worth. This is a new B-36D with twin jets added under each wing to give A-bomb carrier 455 mph-plus top speed.



5 A.M. REVEILLE for Army recruits at Fort Riley, Kan. is a whistle that blasts them out of bed. As he blows, Cpl. George Pruitt turns on barracks' lights.

KANKAKEE KNOWS WHAT'S COMING

FOR SECOND TIME IN TEN YEARS ITS CITIZENS ARE GETTING READY

The gaiety in U.S. cities last week only served to highlight the fact that they were teetering between abundance and austerity. They had been through five fat years and now lean ones were coming. It was that way in Kankakee, Ill. (pop. 25,000). The crowded streets echoed with holiday greetings, and on the face of it the biggest problem seemed to be parking space. But like other U.S. cities, Kankakee was just beginning to switch to a war footing, and this time everyone knew what a war would be like.

In the last war Kankakee had been a bustling defense town, making everything from socks to shell casings. More than 5,500 Kankakeans worked in the town's 20 big plants, and 1,500 more in the nearby Joliet Arsenal. Then the boys came home, the plants reconverted, and Kankakee, riding high, put on a \$4 million civic improvement program which built new schools and parks. The factories expanded. The veterans got good jobs. Today, prosperous and in good shape, Kankakee is ready to start the cycle again. But in the present hiatus between all-out civilian and defense production, some of Kankakee's big companies, like David Bradley (farm tools), short of metals and waiting for war orders, have had to lay off men. And these men are finding jobs hard to get, especially if they are 1A in the draft.

The draft, of course, is what brings Europe and Asia closest to Kankakee. The spirit of holiday gatherings, like that of the Mallaney family (right), is saddened by faces that are missing and the knowledge that others will be missing soon. Already 85 Kankakee boys have been called, the last group just in time to spend Christmas in the Army. And the draft is making all veterans re-examine their status, knowing that soon a lot of Kankakee is going to be in the Army and remembering what it was like when they themselves were new recruits (next page).



FAMILY GATHERING of Mallaney clan shows how Kankakee has been touched by one war and the threat of another. At table head sits Mrs. Marguerite Mallaney Trudeau, next to her husband whom she married in 1943. Absent from this picture are her daughters Pauleen, 30, whose husband is in the Navy in Hawaii; Mary, 33, wife of a Naval

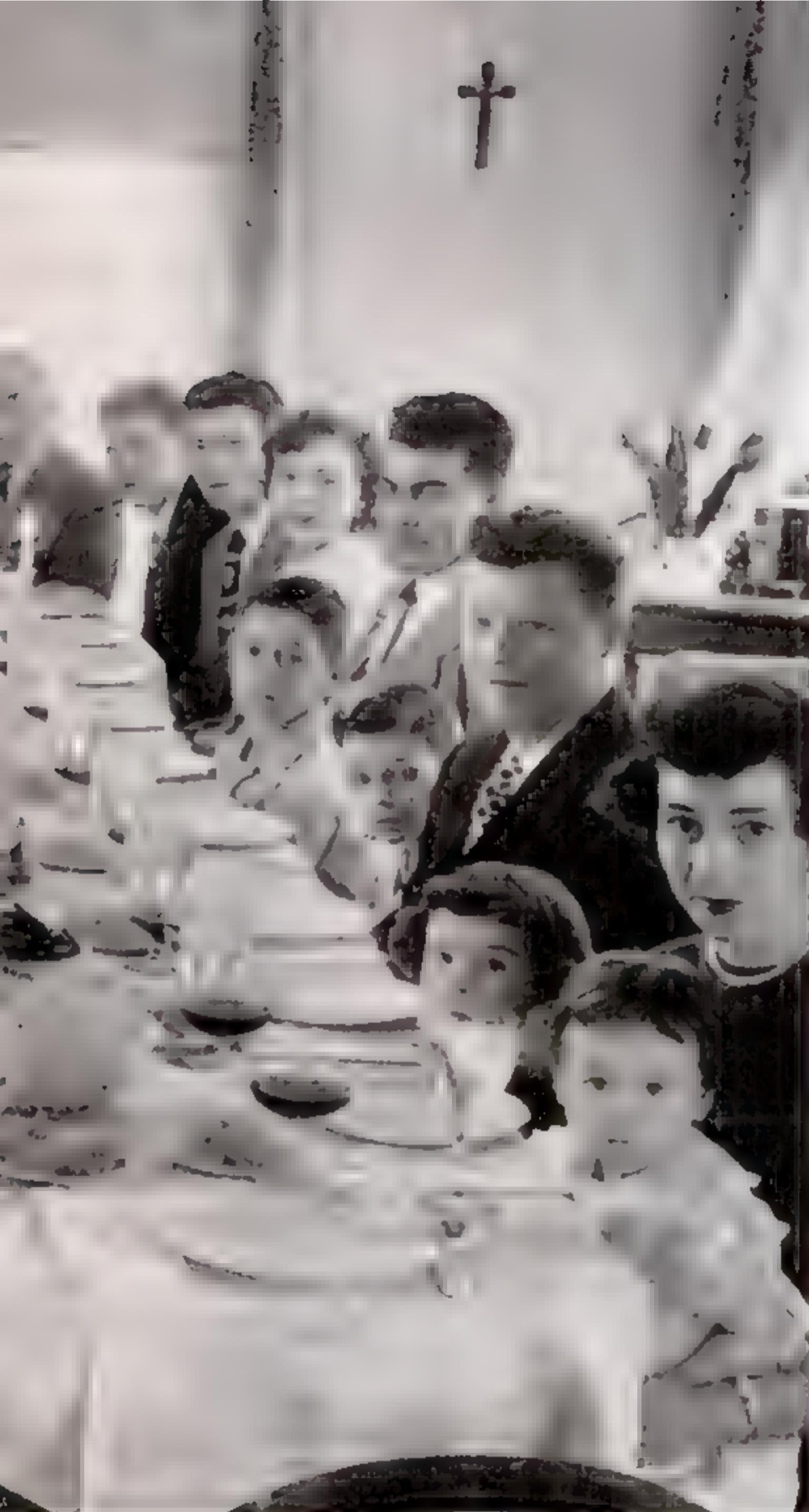
reservist likely to be called; and a son Hugh, who is 4F. Starting at left foreground and going clockwise around table are Marguerite Mallaney Fraser, 31, and husband Verne Fraser, with their four children; Frances Mallaney Schumm, 28, with three children and Edward Schumm II, her husband; Mrs. Trudeau and her husband Harvey



HOLIDAY CROWDS pack Kankakee's Court Street after a snowfall, jamming the stores and streets and fighting for parking space. At left is county courthouse.



FIRST WAR CONTRACT in Kankakee since World War II was signed last week by Florence Stove Co. Here staff discusses plant's conversion to armor plate.



Trudeau, retired toolmaker; Jack Mallaney, 22, unmarried, who was in Arms in Japan and expects to be recalled; Ed Mallaney, 20, who will go into Army in a few weeks; Kathleen Mallaney, 24, nurse, who was trained by government and may be returned to service; Sam Dance, 30, her fiancé, Navy veteran who expects to be called again; Jim Mallaney, 27, a Navy pilot in last war and reservist who hopes for deferment because he has a factory job and a farm, and his wife Gloria Mallaney, whose first husband, an Army pilot, was killed in 1944.



AID TO TITO keeps Kankakee's big General Foods mill alight at night. Plant is filling a government order for 3.6 million pounds of corn meal for Yugoslavia.



LAST NIGHT AT HOME for Francis Graveline, 21, whose draft contingent left next day, was spent with his mother and father, tooting on his \$260 trumpet.



SEEING THEM OFF at Kankakee's Illinois Central depot, families and friends stand around in little groups in the snow as the draftees board a train for Chicago.

ONCE MORE: GREETINGS

THIS IS WHAT ALL THE RECRUITS WILL SEE



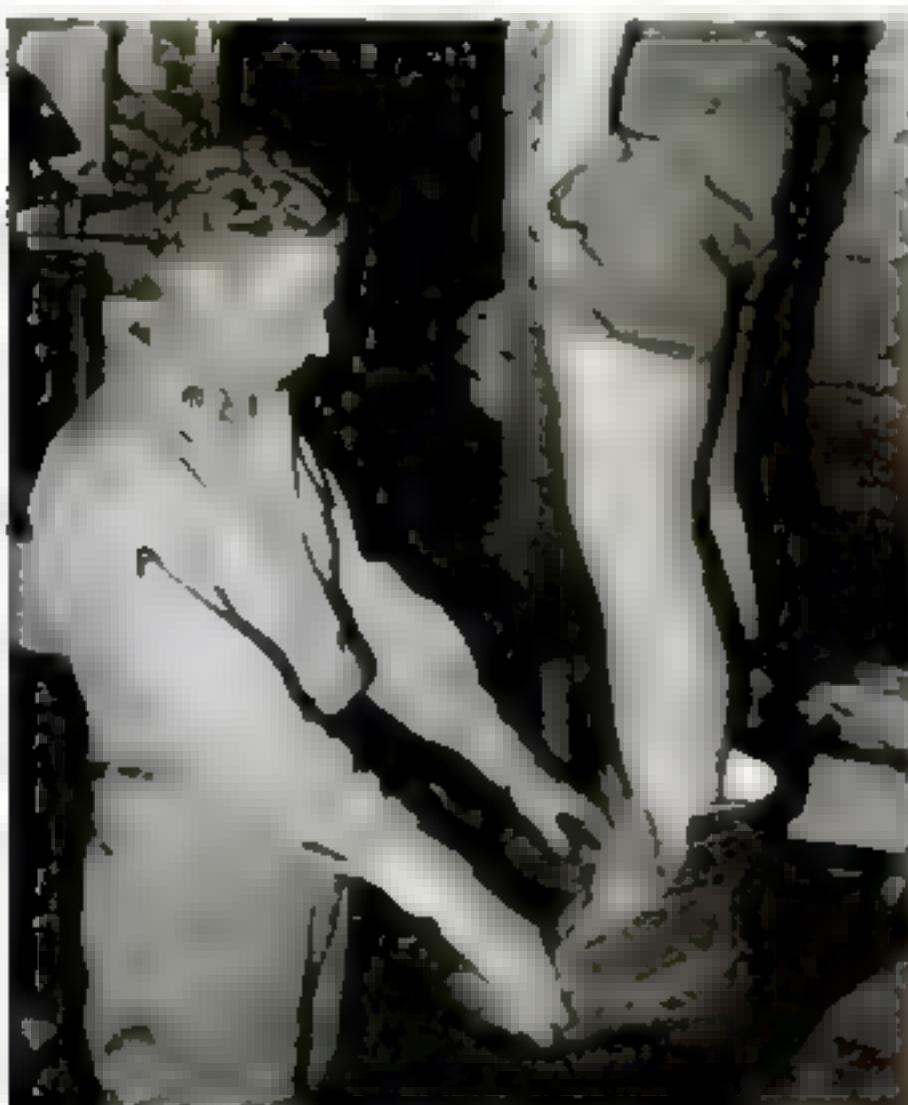
THE DOCTOR at Chicago induction center, holding his tongue depressor, peers into a recruit's mouth.



THE SERGEANT beckons recruit to weigh him. Clerk will note recruit's weight on his medical record.



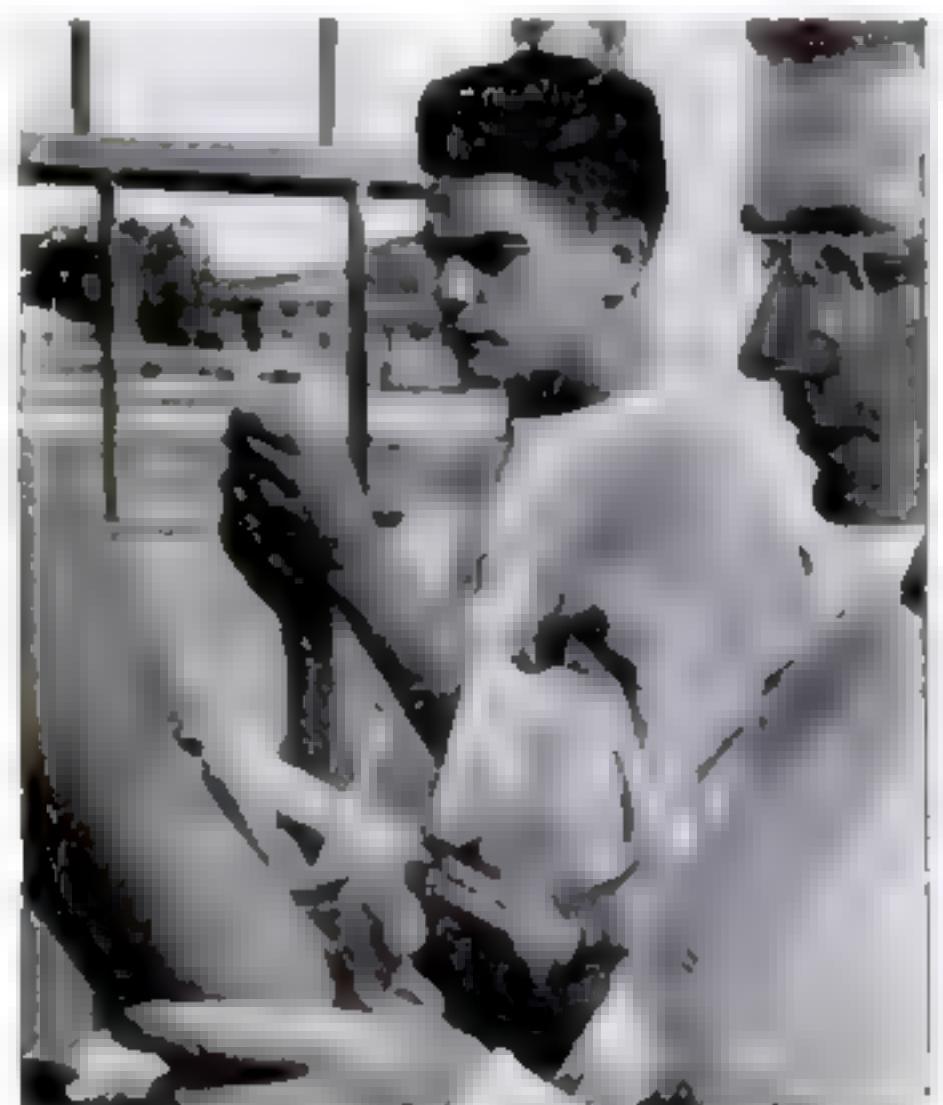
THE CAPTAIN at the induction center solemnly swears in recruits who, theoretically, are now soldiers.



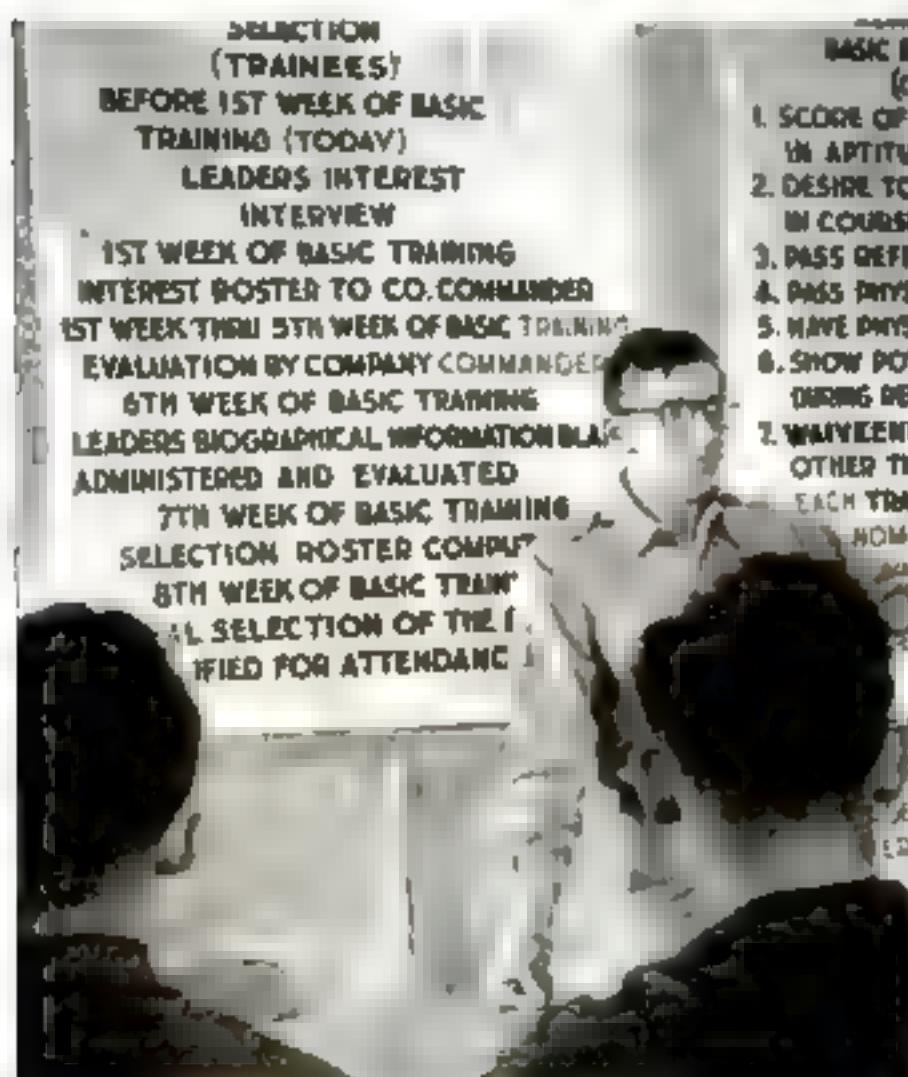
SHOE FITTER at Fort Riley, Kan., goes to work on recruit. One recruit's clothing costs Army \$180.



THE TOUGH CORPORAL tells the recruits to be damn certain they get all clothing pinned to board.



THE NEEDLE raises slight lump on recruit's arm. This sight makes some of the biggest recruits faint.



THE INSTRUCTOR lectures recruits on requirements (listed on wall) to qualify for officers' school.



THE CHAPLAIN gives recruits an orientation lecture, during which as usual they had to fill out forms.



THE LIEUTENANT shows a class of recruits how to manipulate rifle grenade attached to an M-1 rifle.

These recent pictures could have been taken nine years ago. They show what has happened this year to more than half a million young Americans and what is going to happen to many more—just as it happened to about 13 million of them the last time. In the induction centers and the training camps over the country the sights, the sounds and the smells are unchanged. There is first, even before you get a uniform to wear, the same

terrifying succession of paper signings, medical probings, tests and oaths. There is the long smoky train ride to bleak, far-off camps, the poker games in the grim, swaying Pullman cars and the growing feeling of uneasiness as familiar sights and thoughts recede.

But once the routine of the Army takes hold at camp, there is not much time to think of anything but the business of learning to be a soldier. A

salute is an "exchange of courtesy," a "rifle is your best friend" and a top sergeant is no sweeter than he used to be. The gripes are the same too—the chow has insects in it, the shoes don't fit, there aren't enough passes to leave the base and if there were there wouldn't be any place to go anyway. And so are the rumors—we're going to Korea, we're going to Alaska, we're going to Germany, we're going to Hollywood to make a war picture.



THE GREETING to recruits from the general appears at the office where they register upon arrival.



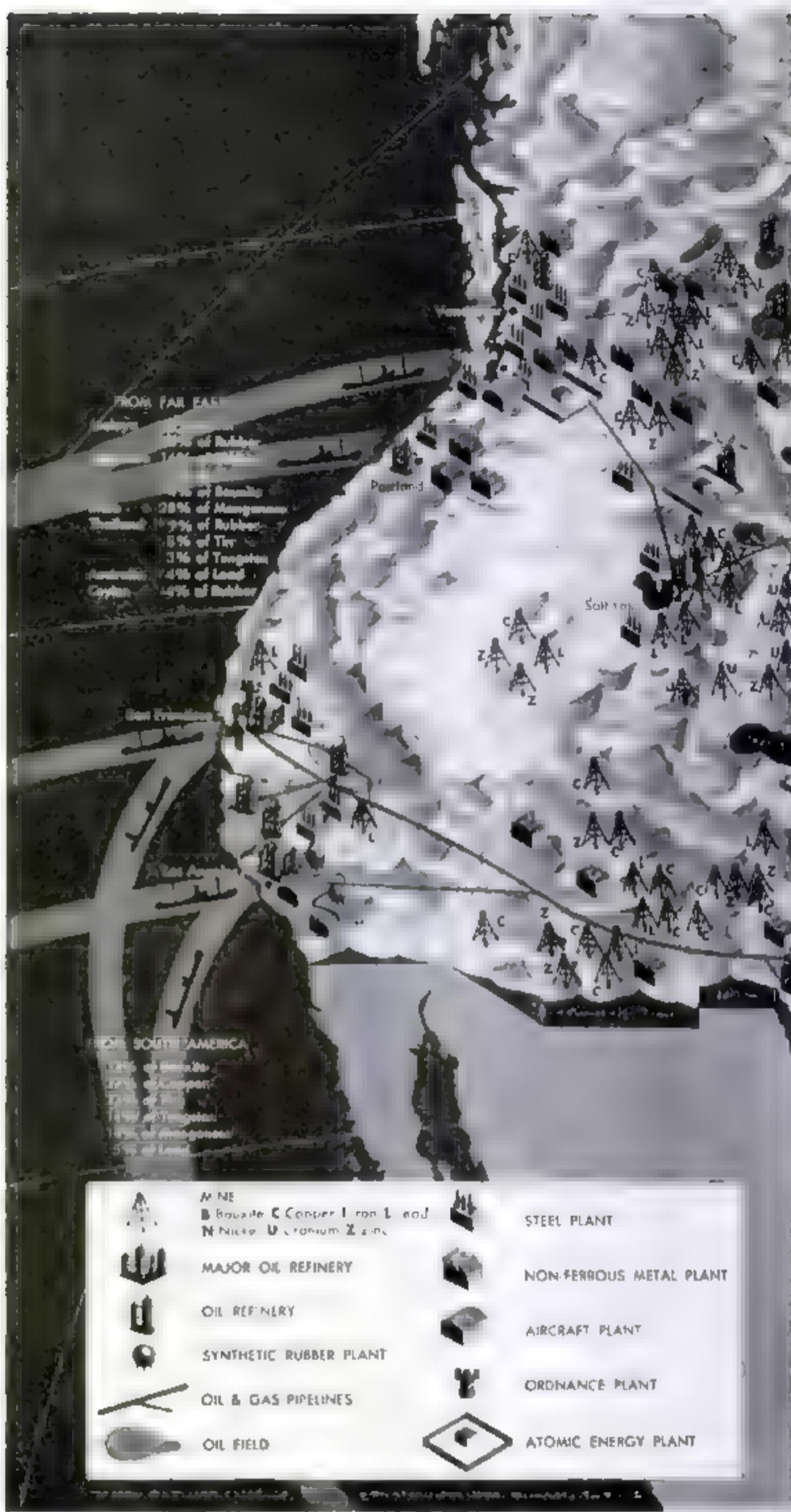
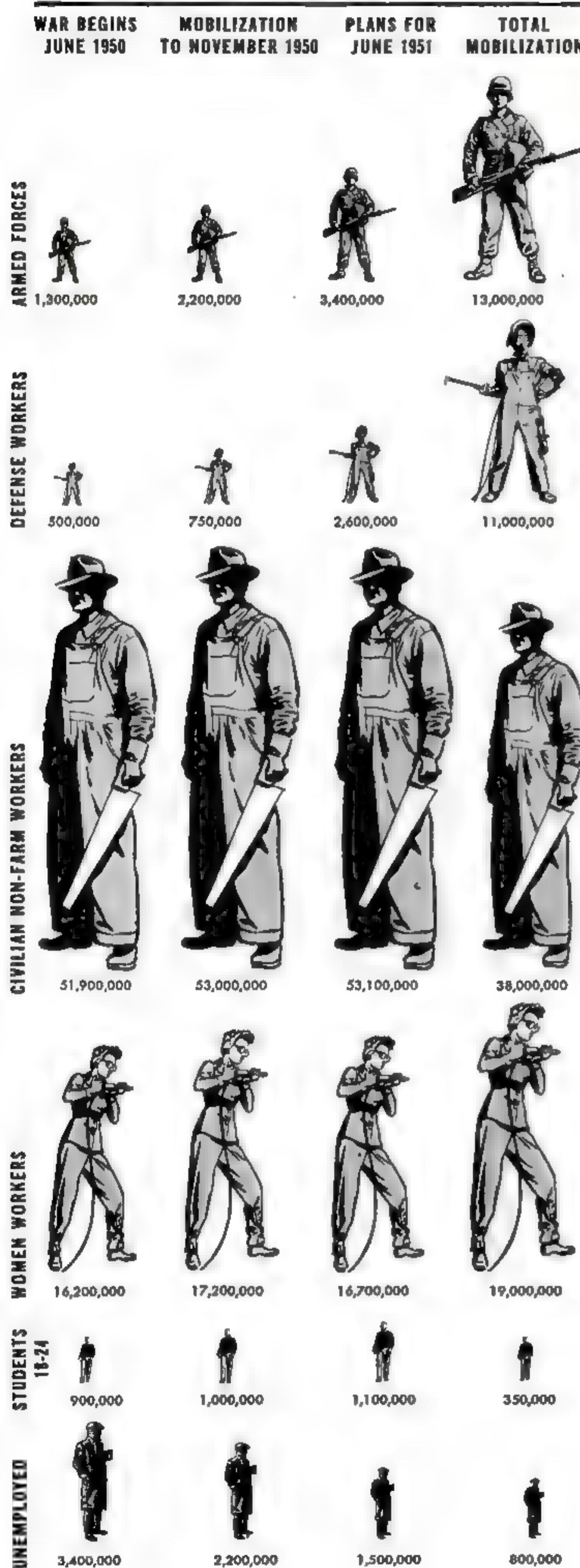
THE MISERABLE RECRUIT, having learned after a night bivouac that war can be cold, has taken

liberties with an Army blanket. When his sergeant catches up with him, recruit will learn another lesson.



THE DISHWASHER demonstrates technique to recruits, many of whom spend much time in kitchen.

THE DEPLOYMENT OF U.S. MANPOWER



A LOOK AT OUR MANPOWER WILL BE SHUFFLED, PRODUCTION EXPANDED,

Charted at left and mapped above are two of the great national assets the U.S. is now mobilizing: its manpower and its great industrial community. The chart shows how manpower was distributed when war in Korea broke out, how little it progressed during "creeping" mobilization, where it presumably will stand next June when the present mobilization ordered by President Truman will be under way, and an estimate of what will happen to the nation's man- (and woman-) power should full mobilization come. As present workers shift into the services or war production they will be replaced by women, unemployed, oldsters, youngsters and mostly by overtime work. Compared with a decade ago, the U.S. labor supply is larger by 7,500,000, better-trained and more strategically distributed.

The war manufacturing facilities, basic suppliers and natural resources



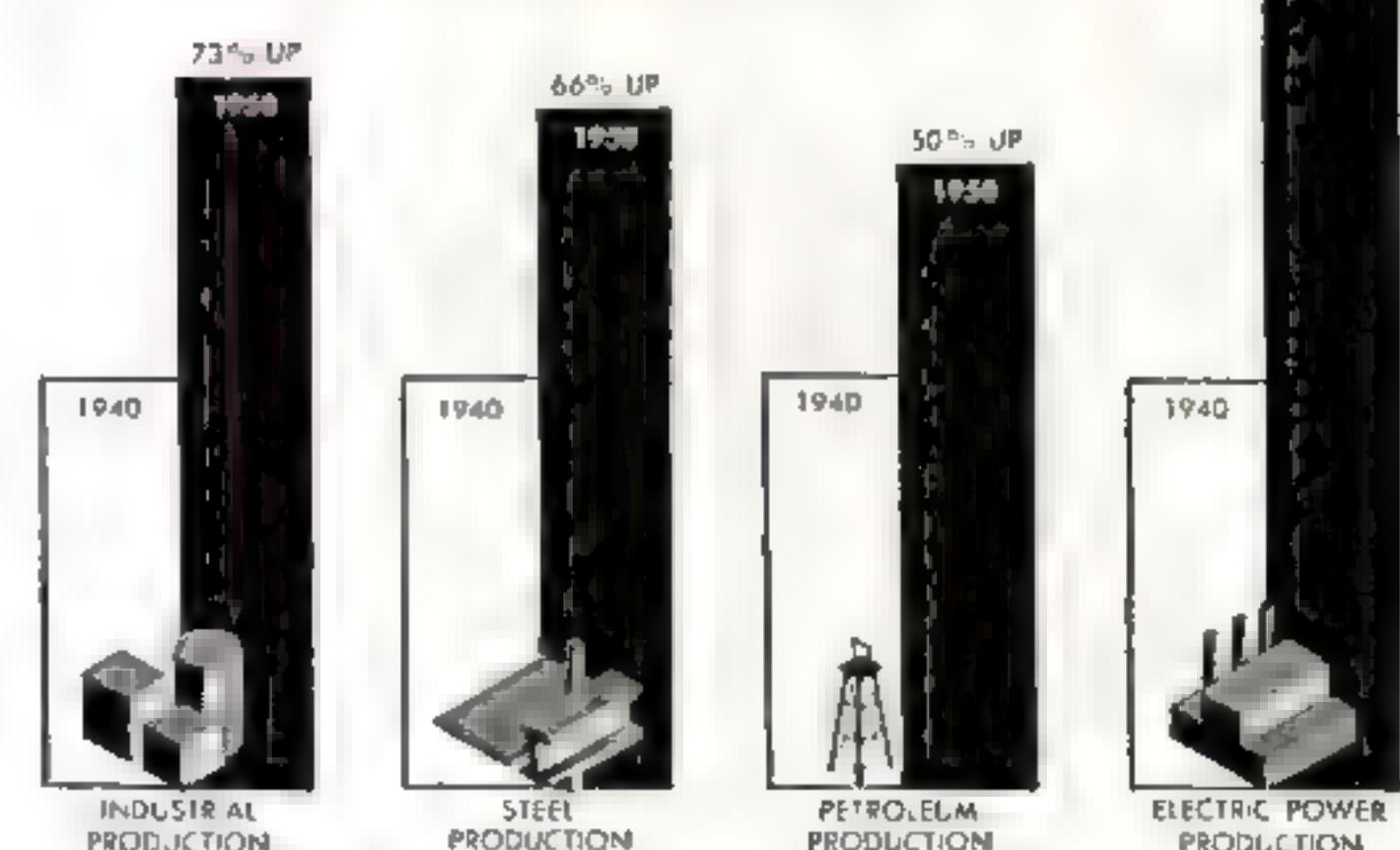
WARMAKING FACILITIES of U.S. are shown on map, purposely widened to contain them. Figures off coast show amounts of vital materials U.S. imports.

WAR POTENTIAL

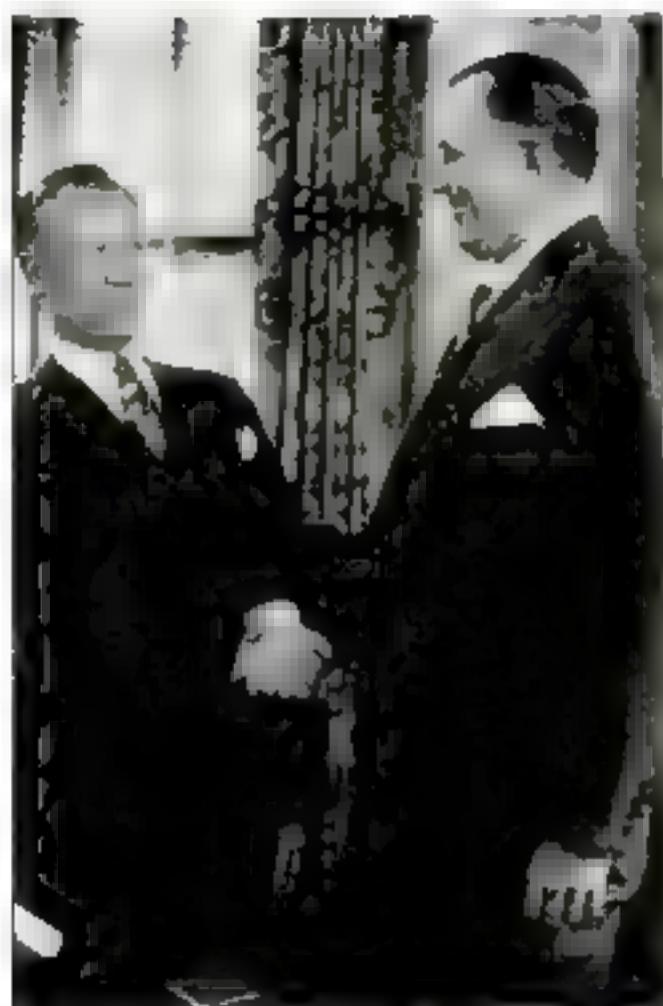
NATURAL RESOURCES HUSBANDED TO MEET NEW NEEDS

shown in the map are enormous (many of the symbols necessarily stand for whole clusters of plants). Furthermore, as the graph at right shows, they represent an enormous growth since the U.S. last mobilized. They are still growing; \$470 million worth of new steelmaking facilities will presently be added, and more nearly total mobilization would entail the addition of networks of other plants, now in civilian production, such as those shown on pages 56-68. But heartening as this is, there are also gaping holes. The U.S. must still import many vital materials, some formerly supplied by China and Russia. Most important is manganese, nine tenths of which comes from overseas and which is essential in steelmaking. The man who will put the U.S. machine into action and supervise the most efficient use of scarce materials is the industrialist shown on the next page.

HOW U.S. INDUSTRY HAS GROWN



"ELECTRIC CHARLEY" GOES BACK INTO SERVICE



OLD JOB ENDS for Wilson (right) with a handshake for Ralph J. Cordiner, his successor as G.E. president.



IN SUBWAY Wilson and S. J. Weinberg (right), one of his two top aides in ODM, head for Grand Central.



IN FIRST HOUR of new job Wilson confers with W. Stuart Symington, head of National Security Resources Board, until now the top U.S. defense planning agency. Symington continues in job, which consists chiefly of advising President.



TWO C. E. WILSONS—"Engine Charley" of GM (right) and "Electric Charley" of G.E.—discuss output.



IN HOTEL ROOM Wilson outlines future duties to General Lucius D. Clay (right), his other top assistant.



EISENHOWER HEADS WEST EUROPEAN FORCES

TWO GIANT STEPS

WILSON AND EISENHOWER ARE GIVEN KEY JOBS

In Washington and in Brussels the U.S. last week undertook two purposeful commitments.

To meet the needs of the home front, President Truman proclaimed a state of emergency, drafted General Electric's fast-moving Charles Edward Wilson and charged him with responsibility for every phase of the nation's mobilization. To be sure no one got in the way of the job, this responsibility was coupled with the most sweeping authority ever granted a U.S. citizen other than the President himself. Wilson resigned his \$175,000-a-year job as president of G.E. and hurried to Washington, where he buckled down to four days of exploratory fact-finding before being sworn in as director of the new Office of Defense Mobilization. With the assurance of a man who knows where he is going, Wilson indicated how his supersgency will function to step up industrial production. It will operate as a policy-making board, giving orders to all other defense agencies. Cabinet officers, over whom Wilson now has some authority, will function like directors of a corporation with Wilson acting as chairman of the board. Heads of agencies will be like vice presidents of a company, each responsible for his own department, all accountable to Wilson, who in turn reports only to Mr. Truman.

In Europe the other U.S. commitment involved the drafting of another eminent American. Foreign ministers of the North Atlantic Council nations (below) agreed to pool their nations' strength into a million-man army for the defense of Western Europe. Chosen for the job of supreme commander was General Dwight D. Eisenhower.



FOREIGN MINISTERS of Western Allies relax in Brussels following official dinner. Left to right, France's Schuman, Italy's Sforza, U.S.'s Acheson, Britain's Bevin and Holland's Stukker. Belgian host is not shown.



PLEASED PRESIDENT, beaming happily as Wilson clutches scroll of office, exhibits list of confidence that passed through official Washington after Wilson's appointment was announced. Same day that Wilson was sworn in he made first

report to Congress: "My guess is the U.S. can supply 50% to 100% more in the next year than in the first year after Pearl Harbor." Earlier, Senate had confirmed his appointment without even calling him to appear, a rare gesture of confidence.

"OF COURSE WE DO!"

The real and present fact of war—war to the finish, war NOW, as was said here two weeks ago—jars the U.S. and the world. Men and governments are at once appalled and challenged by a condition of war which is less than all-out in the usual meaning of the term, but is nonetheless real for all that. At home we look to our defenses and find them even weaker than we knew. Abroad the anguish of our allies mounts. They act, yes; but in acting they manifest a fear of action itself, a fear that to defend themselves is to destroy themselves, and Americans wonder aloud whether allies so obsessed can be of use. For the moment the net result is a certain chaos of thought, a disordered questioning of all that we know of ourselves, of our world and of our sure destiny in it. But all that will pass, as it indeed is passing now. For now we have a new and relentless measure of what we are and of what we do; of what our allies are and of what they do. That measure—and this cannot be said too often—is the real and present fact of war, war NOW. Not tomorrow, maybe. Not in 1951 or 1952, maybe. But NOW. By this, and by this alone, can we now appraise the acts, the policies, the capacities of our leaders, of our allies, of our common selves.

WE MOBILIZE, AND FOR ONCE WE SEEM TO HEED THE PAST

At bitter last the President of the U.S. acts as though he knows the time of night. He proclaims the national emergency which has been so long upon us and calls in a great industrialist, Charles E. Wilson (pp. 16, 17), to mobilize the material might which in part is assessed in this issue of *LIFE*. What is more, it looks as if Mr. Wilson has the character and the powers necessary for doing his huge job as rapidly and as effectively as he is capable of doing it. It looks, for once, as if our government is going to remember and profit from all that was learned about the job before and during World War II. This is the best news of the day, for until very recently our government was forgetting all that had been learned and making all too many of the mistakes which plagued and delayed industrial mobilization between 1940 and early 1943.

The first of these yardsticks is a matter of responsibility and power. We learned the hard way that full responsibility and full authority over all phases of economic mobilization must be concentrated at the top, in one man and one agency. Not that any one man or any one agency can do the whole job; that is impossible. But the final responsibility for seeing that it is done must belong to one man, acting for the President. Complete authority over everyone else and every other agency involved—including the military, in basic procurement—must rest in that man. The Truman directive setting out Mr. Wilson's duties and powers seems to meet this requirement (as it was never really met during World War II). Whether the directive is as

sufficient as it looks will be proved or disproved by events; if we know Charles Wilson he will get out of Washington and out of the job when and if the bureaucrats trip him up or the President lets him down.

The next yardstick is a matter of dull but vital mechanics. Ferdinand Eberstadt, the New York banker who did so much to make mobilization work during World War II, has a punchy term for it—"In the beginning," he says, respectfully paraphrasing Holy Writ, "is the Program." By Program he means simply the calculated needs of the armed services, reduced to specifics and put on paper. Of course there can be no Program, and therefore no real beginning of mobilization, until the military men decide what they want, how much they want and when they want it. Given the Program, there is a great body of precise and workable knowledge on which to draw for the production, conservation and allocation of the materials which go into the weapons and machines of war. Despite all the recent confusion and botching, there is evidence of an intention in Washington to put this knowledge to work in the ways which were proved sound the last time.

That is about as far as the good news goes. Other news of mobilization is bad—so bad that every American ought to take notice and turn on all the heat there is. Believe it or not, the military men at the Pentagon are still fuddling and fiddling with the fate of us all. The shocking truth is that they have yet to face the fact of real and present war—war NOW. Mr. Wilson's most pressing job is to get the armed services to make up their minds, get their orders on paper and out to industry. Just getting this elemental task in train in the weeks just ahead will take all the power, all the prodding, all the heat that he can bring to bear. Here is the worst news of the week—worse than retreat in Korea, worse than the worst of the fears and hesitations of Western Europe. Here—right at home in the Pentagon—is the place where wills must be steeled or heads must be rolled. So far as can be learned in Washington, the responsibility for this destructive inertia rests first of all upon that great soldier and great American, Secretary of Defense George Marshall. This time of harsh necessity and overwhelming need is again his time for greatness—or for retirement.

DO WE WANT ALLIES? WE DO, AND WE CAN HAVE GOOD ONES

The voice of isolation, or of something mighty like it, is heard in the land. Ex-Ambassador Joe Kennedy, a tried and true isolationist from way back, perceives in the present shape of things the proof of all that he has always preached, including the silly conviction that World War II was something we got into by failing to mind our proper business. Pundit Walter Lippmann calls the Western Hemisphere our "island" and says we ought to pull back within it while we still have a little something to pull

back and hold. Ex-President Herbert Hoover also looks outward and draws inward, deriving from an all too realistic appraisal of our weaker allies the conclusion that we can really count only on ourselves.

One quality of these and similar alarms impresses *LIFE* more than the specific prejudices and proposals contained or revealed in them. This is their quality of urgency, a recognition of the extreme necessities and extreme immediacy of our peril. As for the rest—the proposals, variously couched, that we either abandon our allies or give them less reason to stand with us—*LIFE* recommends to all Americans a few direct and simple questions which almost answer themselves.

Do we need allies? Of course we do. Do our allies need us? Of course they do. Are they "good" allies—good in intention, good in their awareness of common peril and common need? Of course they are. Are they weak and fearful allies? Of course they are—who wouldn't be, in their spot? Do we therefore choose to abandon them or to give them less and less reason to stand, with whatever firmness and strength they can summon? **OF COURSE WE DON'T!** Looking always to them for the best that is in them, do we still stand ready to gamble something of our money, our resources, our manpower on them and their will to live? **OF COURSE WE DO!** Do we in the meantime take the measure of the worst that could befall them and us, and prepare for—without inviting—the defense of the last bastions that may be left to us?

OF COURSE WE DO!

EISENHOWER AND EUROPE HAVE AMERICA'S BACKING

Judged in this light, the interests and needs of the U.S. were well served at the Brussels conference which Secretary of State Acheson has just attended and guided with something more than his usual effectiveness. Our allies of Western Europe invited General Eisenhower to be the commander of their joined forces and faced up at last to the absolute necessity of admitting Western Germany as an armed and sovereign participant in the common defense. In general they made a better show of purpose and firmness than might have been expected. Certainly the fear behind the show of action—the fear of action itself, as has been said—was inescapable. Perhaps, as Herbert Hoover indicated, the minuses revealed at Brussels were bigger and more significant than the plusses. But what American in his right mind today would deliberately magnify and compound the minuses of Western Europe and deliberately ignore and destroy the plusses? The plusses are there, and General Eisenhower is the man to marshal and multiply them if any man can. In this endeavor he happily has the total backing of President Truman, and *LIFE* believes he will have the effective backing of the U.S. Congress and people.



When snow and rain and blowing sleet
Make good hot soup a special treat—
A bowl of "summertime"—oh boy!—
To winter appetites brings joy!

A Garden in a Bowl for Winter Appetites!

Luscious tomatoes, sweet golden corn,
young limas, carrots, crisp celery, peas,
peppers, potatoes, both white and sweet
... in all, more than a dozen of your
favorite vegetables... a veritable summer
garden in a bowl! And they're mingled
in a sturdy, full-flavored beef stock that

makes Campbell's Vegetable Soup a
hearty soup — sure of a family welcome.
Pull up a chair to a bowl of this good
soup on a winter's day. When you've
finished, you'll know you've eaten. You'll
be warmed, refreshed, satisfied. Folks call
it "almost a meal in itself." You'll see why!



Campbell's VEGETABLE SOUP

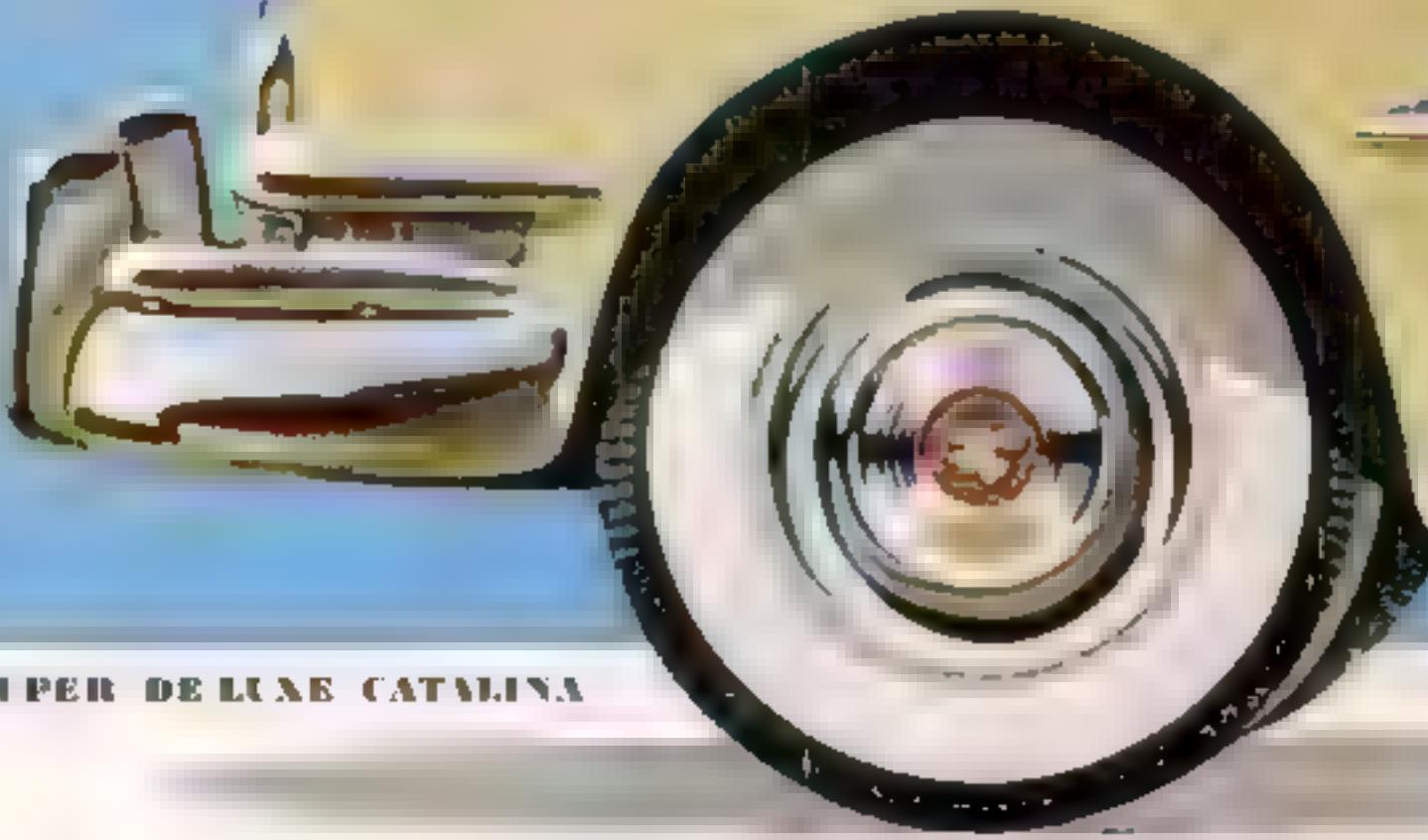
made with a
homey BEEF STOCK



Announcing
New
Pontiac

On behalf of Pontiac dealers everywhere in America we cordially invite you to visit the Pontiac showroom nearest you and see a motor car masterpiece—the new Silver Anniversary Pontiac. We feel sure you will agree that this is the greatest of a long line of wonderful Pontiacs and one of today's really great values. This would be a perfect year for you to know the pleasure and pride of Pontiac ownership.

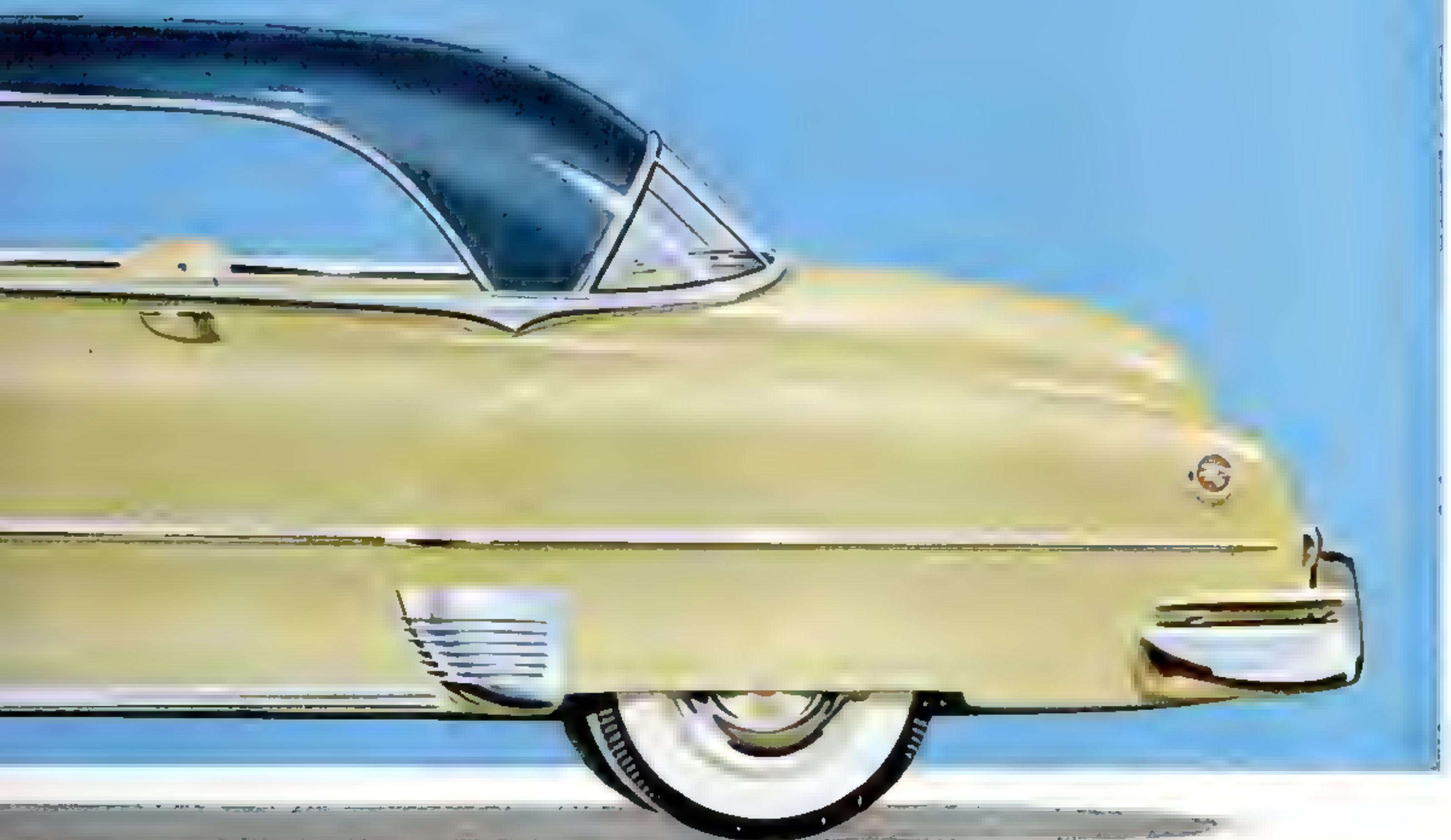
PONTIAC MOTOR DIVISION OF GENERAL MOTORS CORPORATION



PONTIAC SUPER DELUXE CATALINA

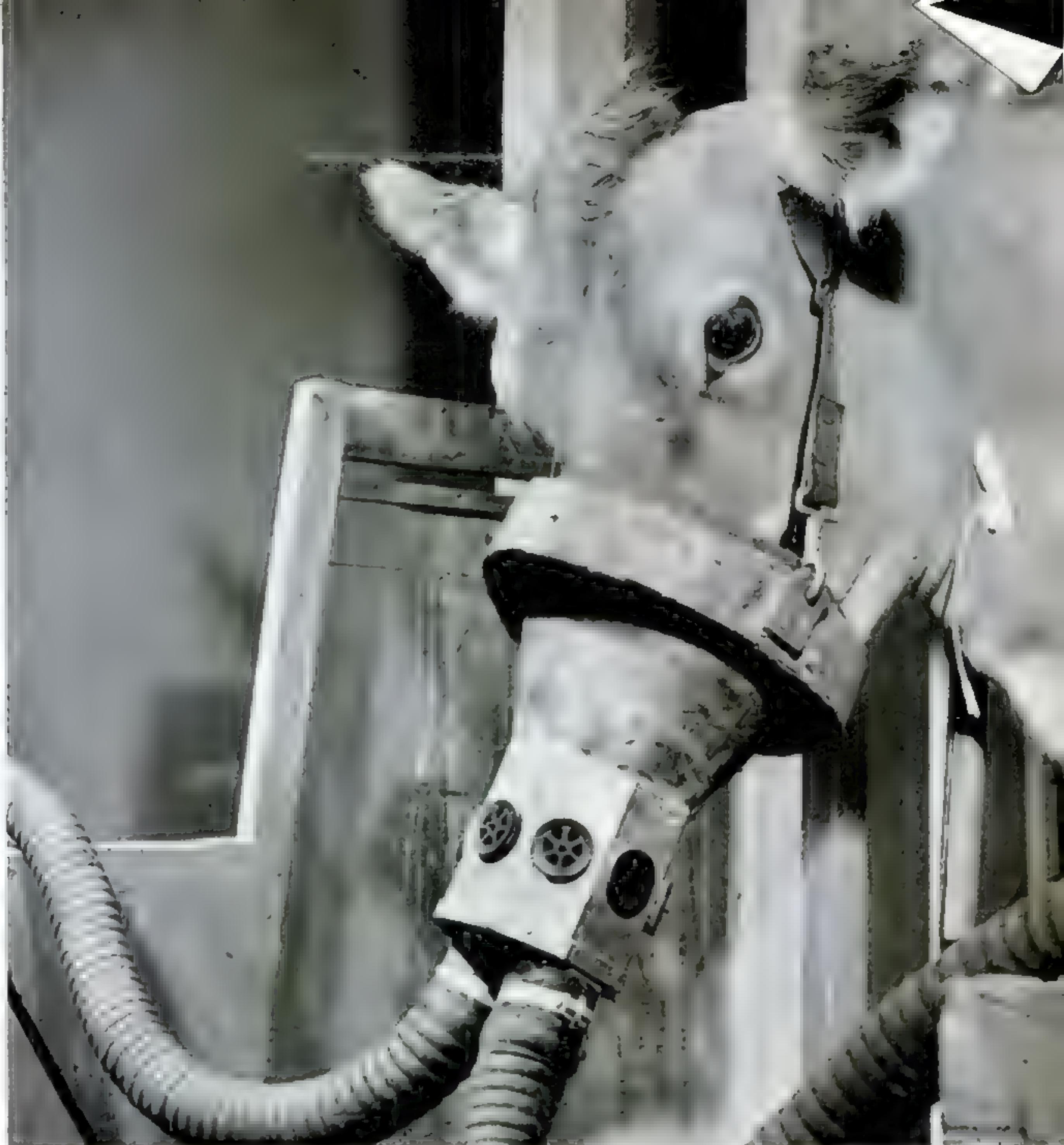
Motor car display... fair and beautiful. Price that

the
Silver Anniversary
Pontiac



Dollar for Dollar you can't beat a Pontiac !





"HOT COW" is used at University of California to study metabolism. Various nutrients containing radioisotopes are injected into the animal, which then exhales radioactive CO_2 into gas mask. Rate at which radioactive CO_2 is exhaled shows how fast the cow's body uses the injected compounds.

ATOMIC PROGRESS

As bombs pile up, nuclear energy finds new, creative applications

PHOTOGRAPHED FOR LIFE BY ALBERT FENN

In the 5½ years that have passed since the first A-bomb seared the sands of Alamogordo, atomic energy has emerged as the world's most perilous and most precious asset. War and the threat of war have brought about an almost unbelievable development of its destructive capabilities. Nuclear explosives which had not even been thought of 10 years ago are now being mass-produced in vast, ultramodern plants, and others even more powerful are in the making. But the great creative capacities of the atom's energy, long overshadowed by the spectacular and terrifying nature of the bomb, are only now beginning to be revealed.

The constructive by-products of atomic energy are of two kinds, both created by the controlled nuclear fission within an atomic pile. One is power in the form of intense sustained heat which may some day be harnessed to supply whole cities with cheap electricity (pp. 34, 35). The other is a wide range of new radioactive materials called radio-

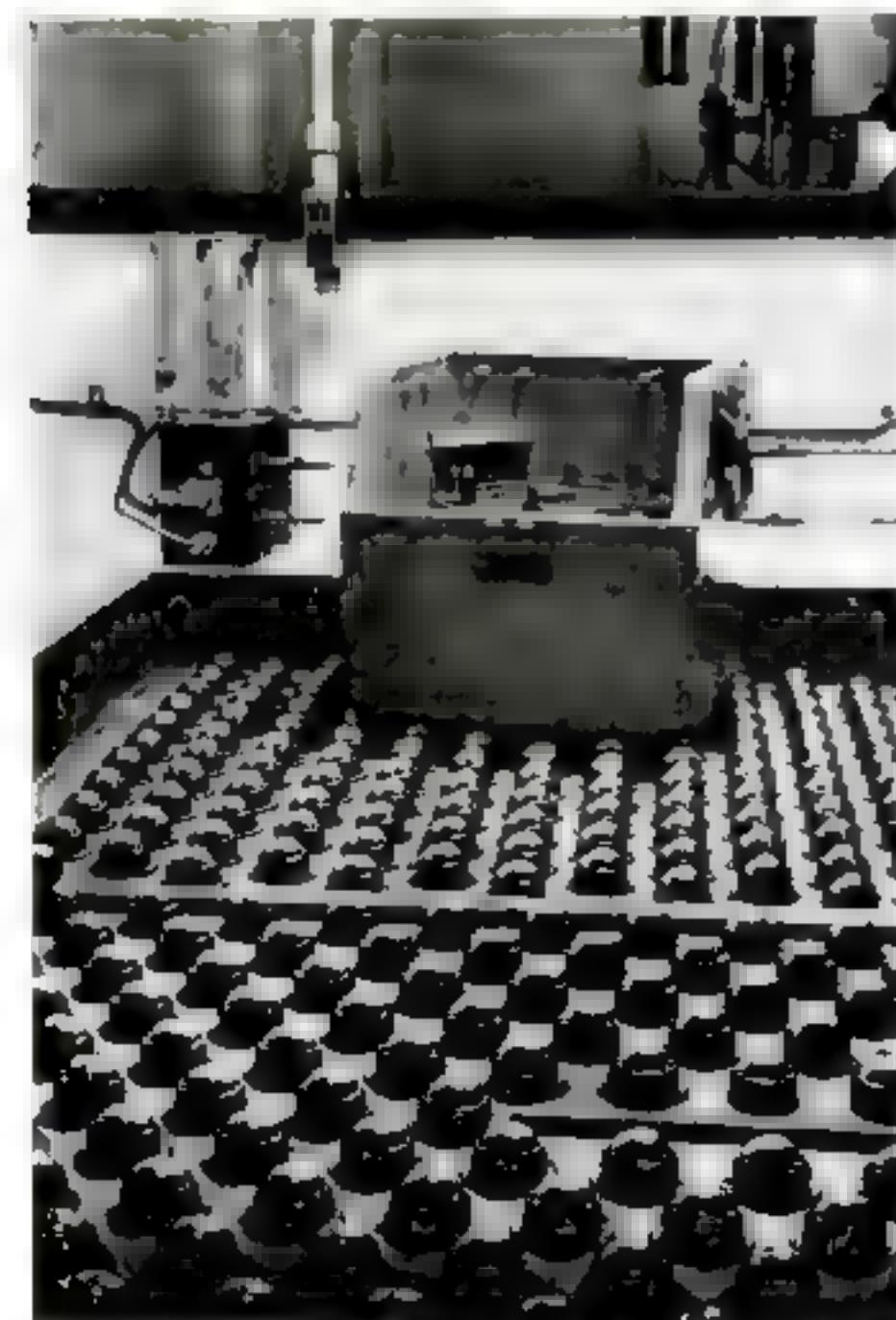
isotopes, which are simply the radioactive forms of ordinary elements like carbon, iron or cobalt (opposite page). Because their radiation can easily be detected with Geiger counters, these isotopes can be traced as they move through the body of an animal (above) or the pipes of an oil refinery. The most complex chemical processes can be analyzed by substituting "hot" elements for normal ones and following them through invisible reactions by their telltale radioactivity. So sensitive is this form of analysis that quantities as small as 10,000 atoms—one million millionths of a gram—can be detected and traced. This method, now considered the most important development in science since the invention of the microscope, has already found practical application in medicine, industry and agriculture. Yet isotope research is still in its infancy. In time this new science, stepchild of the atomic bomb, may have consequences which will affect men's lives far more than the bomb itself.



OUT OF THE PILE comes a can of "hot" material. It is drawn by a rod into radiation-proof lead case.



INTO A BOTTLE go a few grams of "hot" solution, poured by remote control from behind thick window.



READY FOR SHIPPING, the bottle is placed in lead box which is then rolled away on ball bearings.



X-10 AT NIGHT gleams under rows of floodlights. At left are the analytical laboratories; at right, the

steel buildings where isotopes are purified. X-10 handles all radioactive materials. Another Oak Ridge

ISOTOPES ARE MADE AT

The focal point of the whole U.S. isotope program is the Atomic Energy Commission's billion-dollar plant at Oak Ridge, Tenn., where half of the nation's A-bomb fuel is made (LIFE, Feb. 27, 1950). Here, in a small, closely guarded group of stainless steel buildings called X-10, scientists and technicians work round the clock to turn out radioactive substances for several hundred research centers at home and abroad.

Isotopes are made in the intensely radioactive interior of Oak Ridge's pile—a great cube of graphite honeycombed with uranium rods (*top, opposite page*). Built originally as a pilot plant to solve problems of A-bomb production, this pile is now used entirely for nonmilitary purposes. Its sustained chain reaction, caused

by the controlled fission of uranium atoms, creates the isotopes in three different ways. Some are formed when uranium is broken down in the fission process. Others result from transmutation; sulphur, for instance, becomes radio-phosphorus (radioactive phosphorus) when it is bombarded by neutrons within the pile. Still others are made by irradiating ordinary elements to make them radioactive. Once each week the pile is shut down, and the "hot" materials are withdrawn. They are then purified chemically and stored. When shipments are needed, small amounts are bottled by remote control and packed in heavy lead cases (*left*).

Before the invention of the atomic pile, isotopes were produced in minute quantities by



plant, called Y-12, produces stable (nonradioactive) isotopes which are sometimes used in basic research.

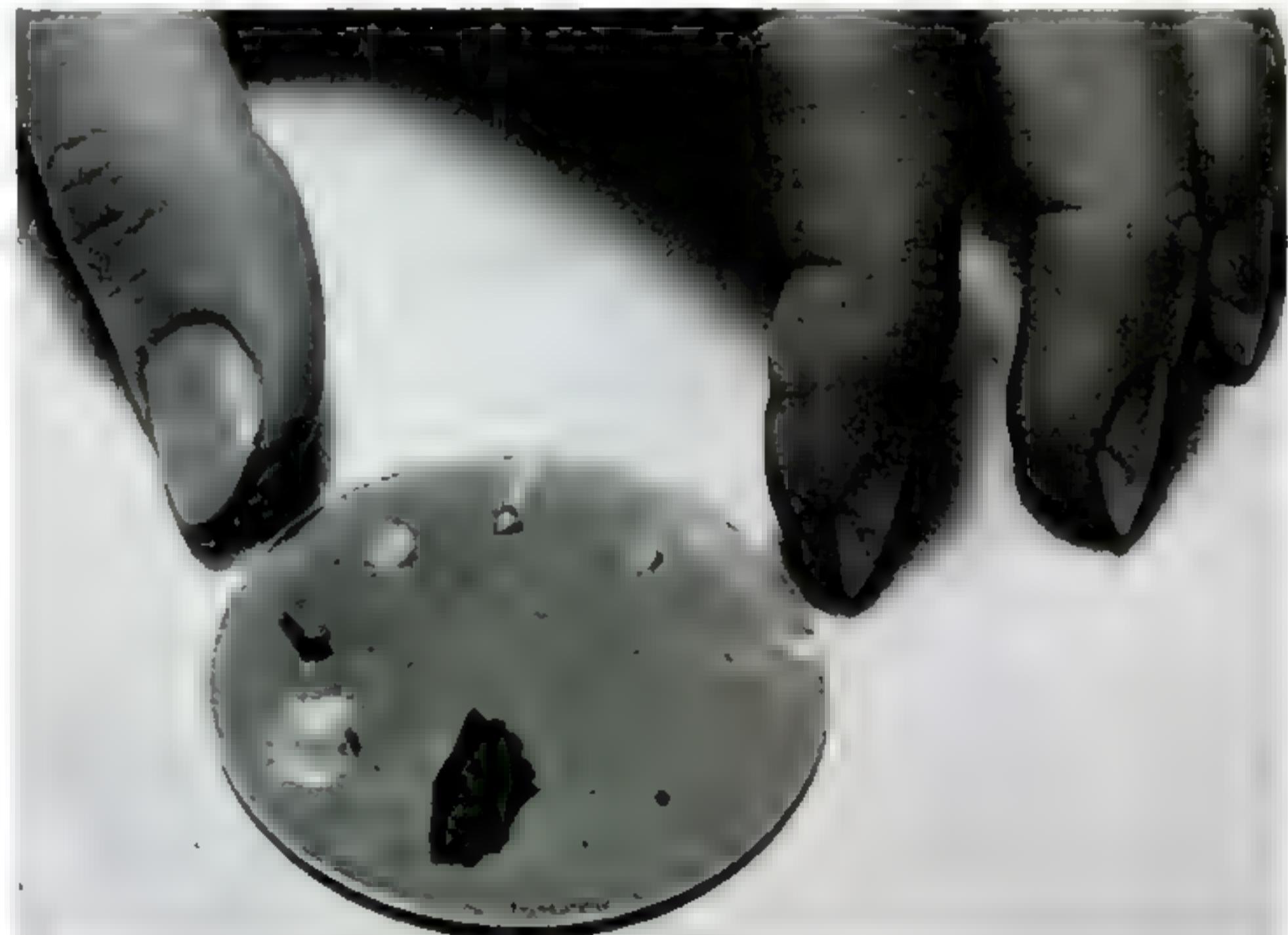
OAK RIDGE

exposing various elements to the rays of cyclotrons. The total output by this method was too small to permit large-scale research. Today X-10 is geared to an annual production of isotopes equivalent in radioactivity to 500 grams of radium. This amount is enough to cover the nation's present needs and to make X-10 a million-dollar business (AEC sells its wares at cost to organizations equipped to handle them safely). Oak Ridge sends out 7,000 bulky shipments of diluted radioisotopes each year. Yet the actual volume of pure isotopes produced is minute: for if all the "hot" atoms—the active ingredients—in these 7,000 shipments could be lumped together by elements, they would add up to half a dozen tiny pieces the size of those shown at right.



THE OAK RIDGE PILE stands in a big open room which gives workers easy access to its loading face. The

substances to be irradiated are pushed in with a long rod through a carrier lined up with an opening in pile.



YEAR'S CROP of "hot" atoms, symbolized above, would weigh less than one gram. From coal (bottom),

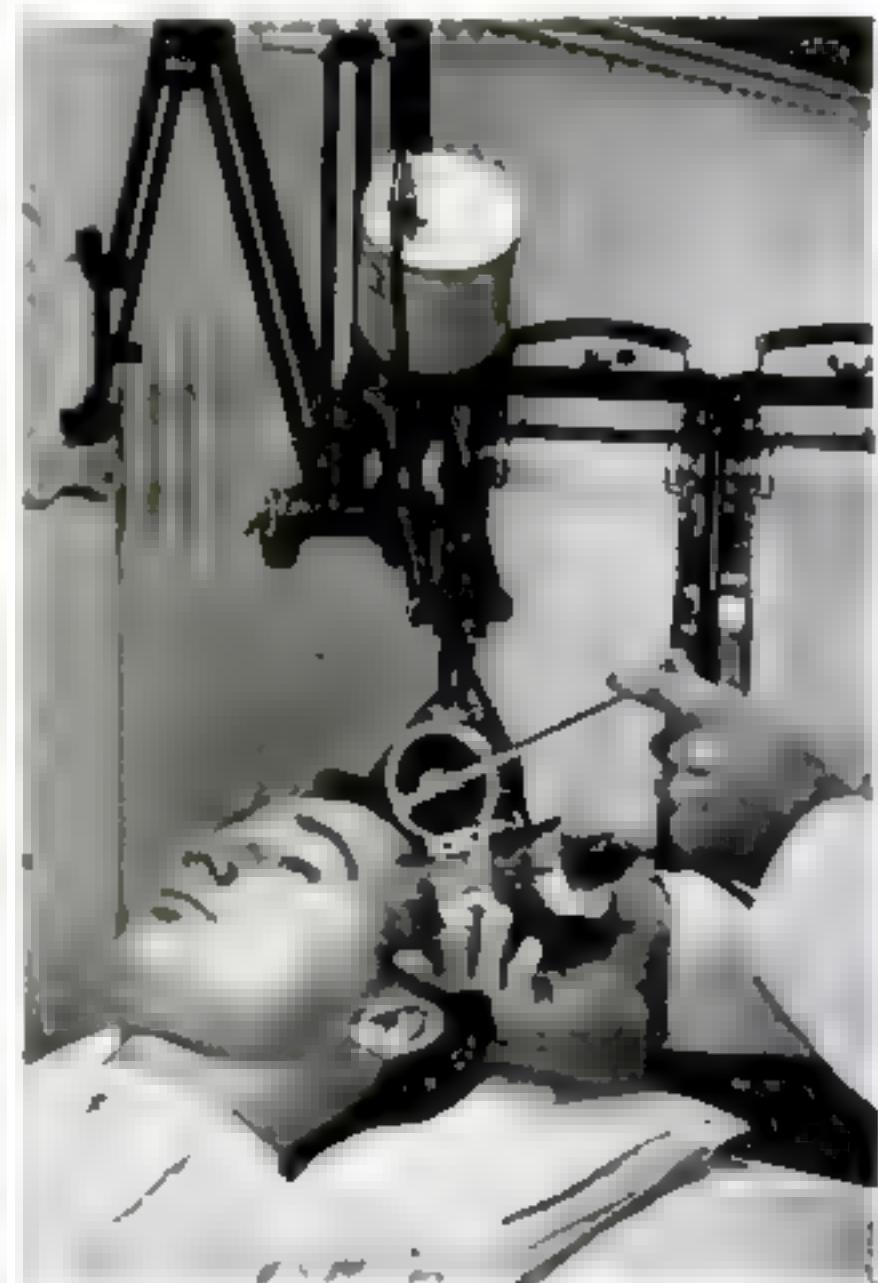
representing carbon, are (clockwise) chlorine, cobalt, strontium, iodine, phosphorus, sulphur, all others.

DIAGNOSIS AND THERAPY



EYE DISEASE called keratitis, in which a film growing over the eyeball causes blindness, is treated with radioactive strontium. Isotope is contained in the concave end of an applicator

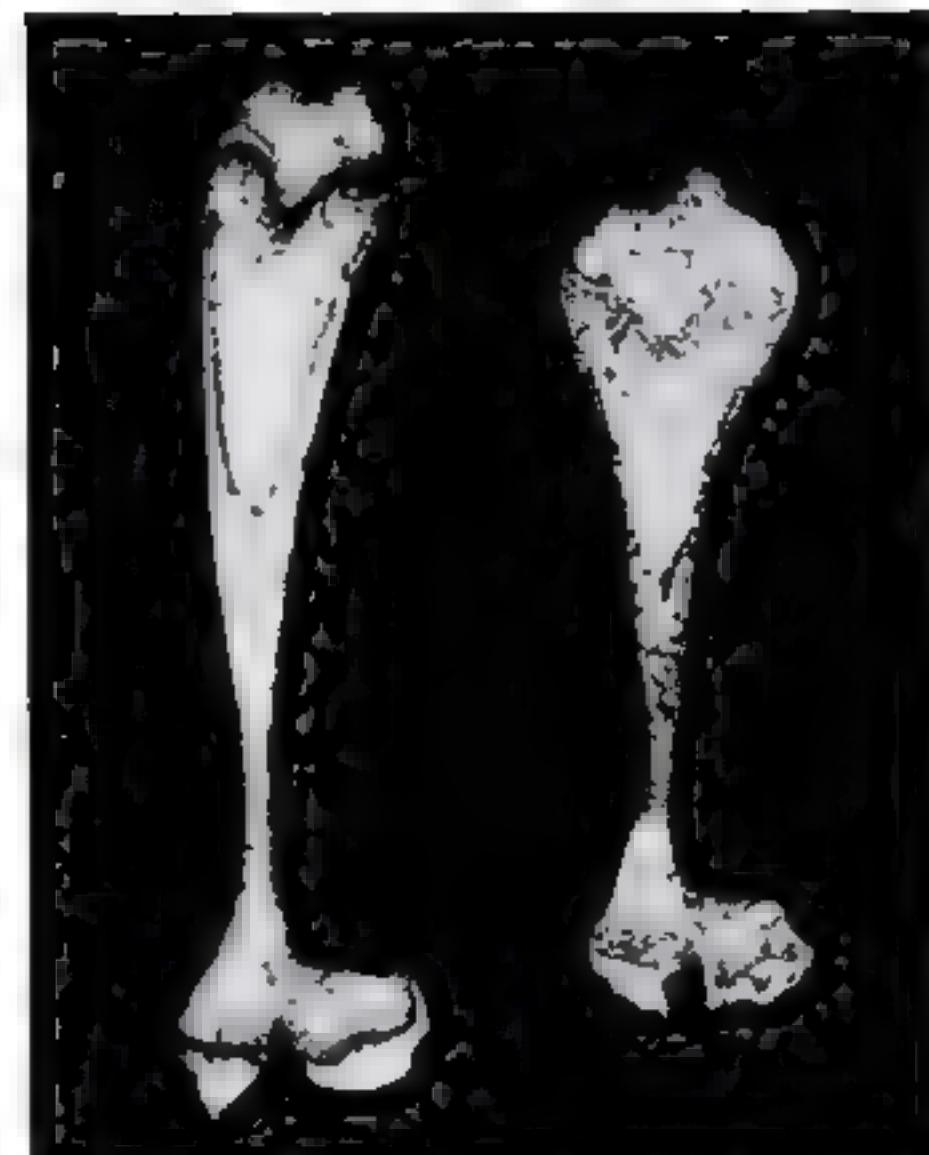
which fits snugly over the eye. Lucite shield protects doctor from radiation. This patient, who was treated last July at New York's Mt. Sinai Hospital, has now regained much of his vision.



BRAIN TUMOR is located by doctors at VA's Hines Hospital with a radioactive fluorescein dye which is injected into patient. Tumor absorbs solution, can be spotted with Geiger counter.



HYPERTHYROIDISM is arrested at University of Pennsylvania Hospital with doses of radioactive iodine which destroy some of thyroid tissue. Patient regained his health in two months.



EFFECTS OF NUTRITION on bone growth are studied by feeding young rats radiocalcium and then placing cross sections of their bones on photographic film. Light areas on resulting radioautographs show that calcium builds up at ends of normal bone (left) but not at ends of bones from animal with rickets.

ISOTOPES HELP STUDY OF LIFE

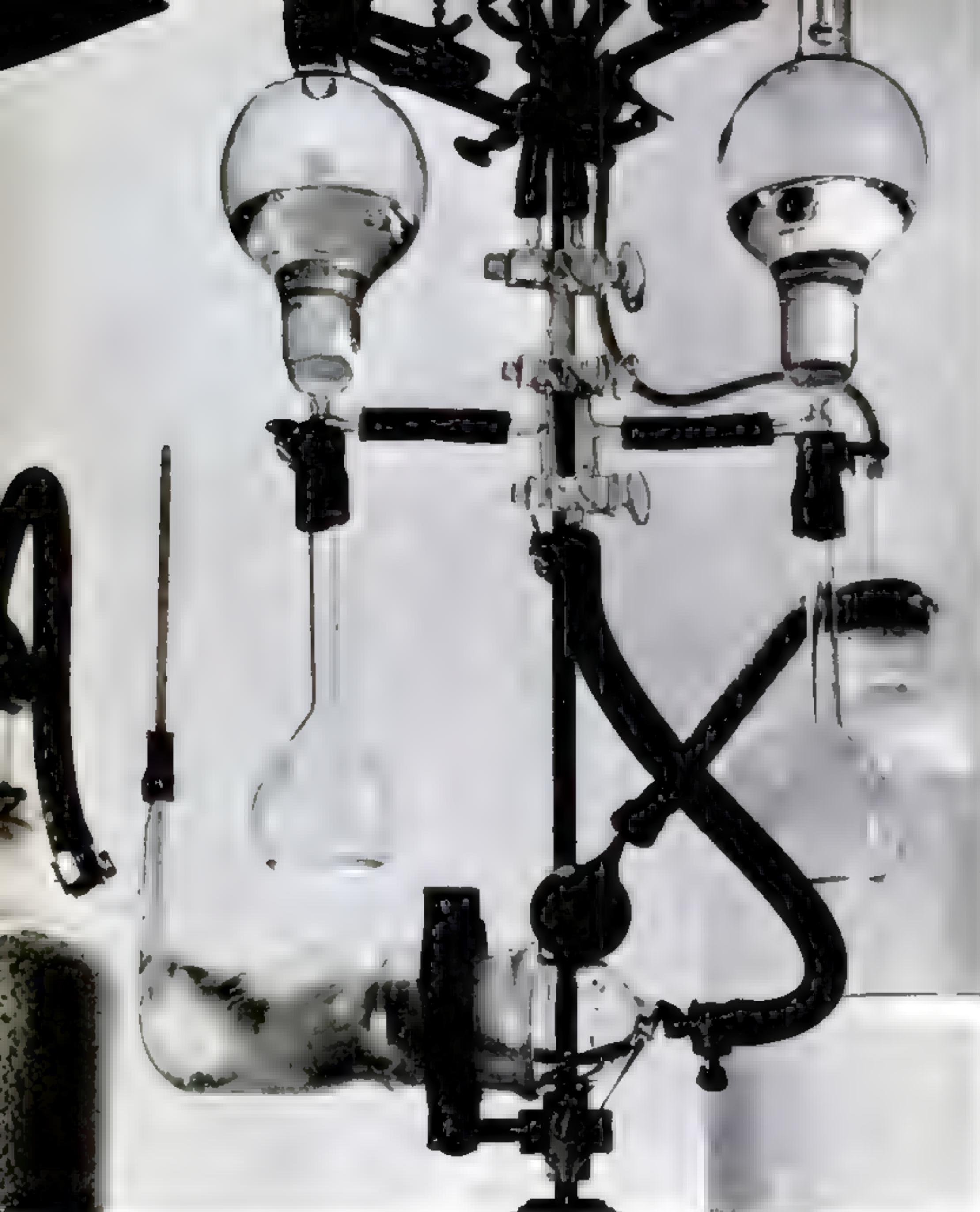
The desperate duckling on the opposite page is a principal in an isotope research project which may lead to a new treatment for overstrained hearts. Like many other medical experiments with isotopes, this one will not pay off in practical applications for some time. But a few such studies have already produced life-saving results. The most spectacular has been the use of radioactive iodine in the treatment of certain kinds of thyroid cancer (LIFE, Oct. 31, 1949). When injected into the body, radioiodine, like ordinary iodine, concentrates in thyroid tissue and is not retained anywhere else. Its radioactivity, therefore, is mostly confined to the diseased area and does little damage to healthy flesh. The treatment has not always been successful, but its sometimes brilliant results led doctors to hope that other isotopes might be found which would travel to other specific cancerous organs and irradiate them in the same selective way. So far none has been found. However other important if less dramatic applications have been discovered (left). Radioactive cobalt, for instance, is now replacing expensive radium in therapeutic irradiation. And radio-phosphorus has proved effective in treating skin cancers and certain blood diseases.

But the richest promise of radioisotopes lies in medical research and biology, where they serve as uniquely valuable tools for the study of fundamental life processes. Half of Oak Ridge's isotope production is earmarked for use in this field. Radioactive sodium can be injected into the bloodstream to measure the rate of circulation. Red blood cells can be tagged with radioactive iron so that their rate of formation can be determined. The radioactive forms of elements like phosphorus and carbon, essential to all living things, can now be traced as they move through complicated biological processes, such as fat or sugar metabolism, which heretofore could not practicably be observed at all.



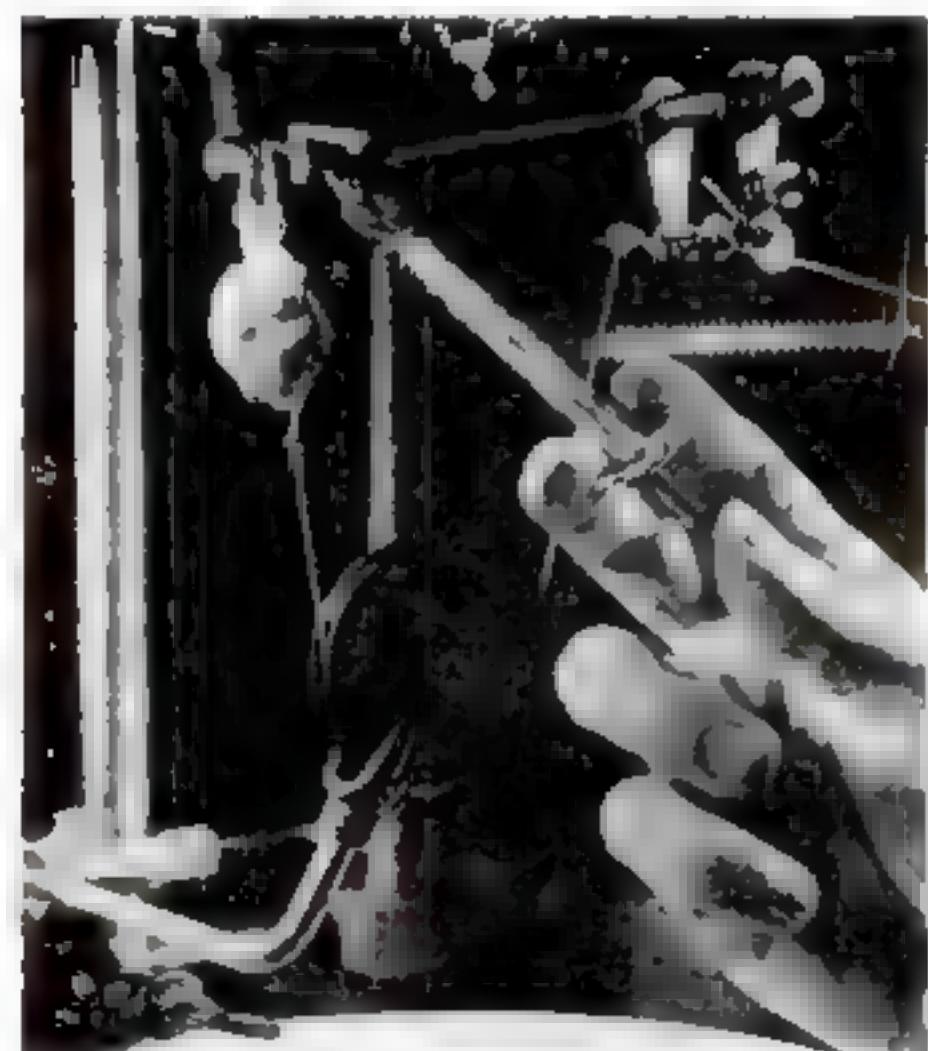
WATERLOGGED DUCK is helping Harvard scientists find out how nutrition affects heart strain. Duck is fed vitamin-deficient diet, then put in a tank of feather-drenching detergent where it paddles frantically to stay afloat. The exhausted bird is immediately killed, and slices of its still living heart are put in tiny glass

vessels containing radioactive sugar, protein or fat—the substances with which the blood restores tired muscle. The amount of each substance absorbed is indicated by radioactivity of the slices. This test has shown that the lack of any essential dietary component lessens the ability of an overtaxed heart to restore itself.



RADIOACTIVE RODENT TESTS A NEW DIET

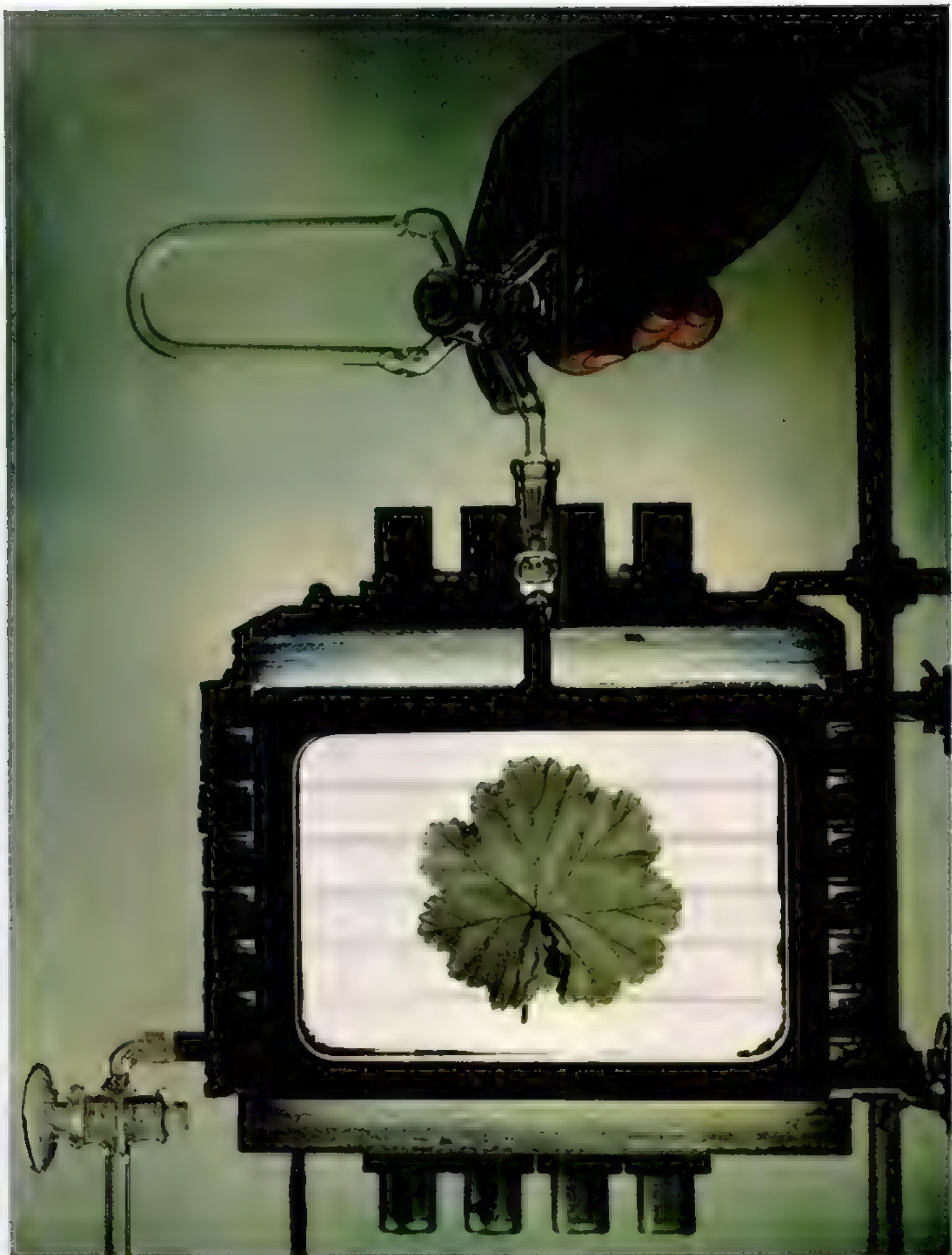
To test the effectiveness of a newly developed intravenous diet, scientists at the Harvard School of Public Health are using rats and radioactive carbon. A rat is injected with the new diet, which contains fat. The fat in the diet has previously been tagged with radioactive carbon. Then the animal is sealed into a closed system of glass and rubber tubing, which is supplied with air that has been purified by passage through a chemical filter (extreme left). As the rat's body consumes the radioactive fat in the diet, it exhales radioactive carbon dioxide which bubbles up into liquid-filled flasks (top), where its volume can be measured and the intensity of its radioactivity accurately determined. The speed with which the rat breathes out the "hot" CO_2 reflects the speed with which its body utilizes the fat in the diet. The experiment proved that the diet was quickly and easily absorbed by the tissues. This proof will be important to medical scientists, for never before has fat, which contains twice the energy of other foods, been successfully incorporated into an intravenous diet.



RADIOACTIVE TOAD HELPS IN HEART DRUG STUDY

To find out precisely how the drug digitalis affects the action and the tissues of the heart, scientists at the University of Chicago are making use of the peculiar properties of both radioisotopes and Bermuda toads. These toads, they have discovered, secrete in their neck glands a substance called bufagin, which is a heart stimulant almost identical to digitalis. Bufagin can be made radioactive simply by feeding the toads meatballs (above, left) which contain algae grown in an atmosphere of "hot" carbon dioxide. As the toads digest the algae the radiocarbon is absorbed by the animals' bodies and becomes incorporated chemically into their

glandular secretions. The radioactive bufagin is later extracted by gently squeezing the toad's neck glands (center). To test its effects on heart action, the drug is injected into a living guinea pig heart (above, right) which is attached by a thread through a pulley to the needle of a scribe. When bufagin is administered the scribe records a sharp increase in the pulse rate. Then, to determine the effects of this drug (and hence also of digitalis) on heart tissues, the organ is dissected and each segment analyzed for radioactivity. In this way it is possible to discover exactly how much of the drug is absorbed and by what particular parts of the heart.



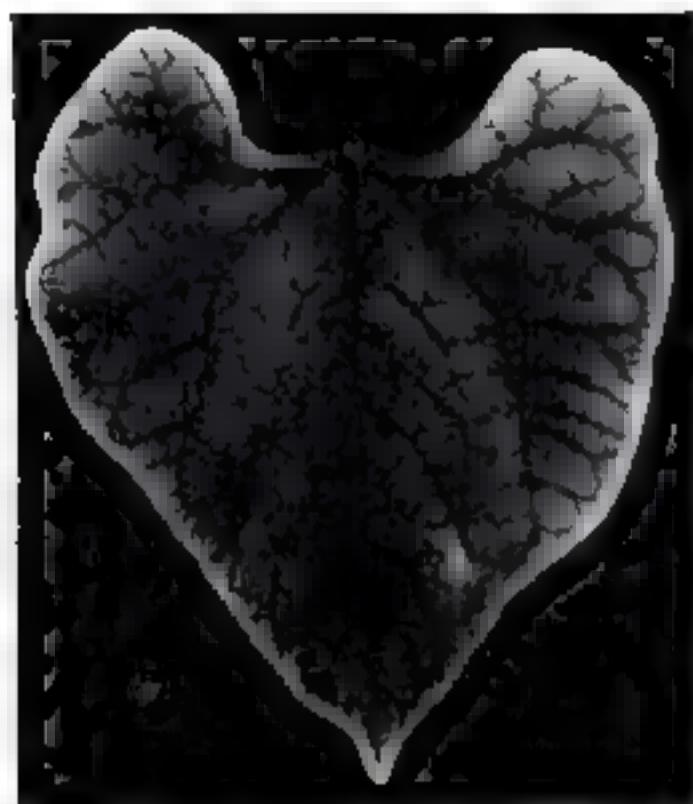
PHOTOSYNTHESIS, the mysterious process whereby plants make use of the sun's energy to convert carbon dioxide into sugar, is being studied at the University of California with the help of radioactive isotopes. To trace the first steps in the complex process, a living geranium leaf, photosynthesizing in a sealed light box, is given a shot of radioactive carbon dioxide gas and allowed a few seconds

in which to start converting the "hot" material. Then the leaf is broken down into its basic chemical components. The components which are found to be radioactive are the ones which are formed in the early stages of photosynthesis. This continuing study is a classic example of fundamental research, for it is concerned with the very basis of plant life which in turn supports all other life on earth.



"HOT" FERTILIZER containing radioactive phosphorus is poured from glowing crucible at a Department of Agriculture research center. The molten mixture hardens into a glassy substance and is then ground up into a fine powder. In recent years more than a dozen widely used fertilizers have been tagged in this way

with active phosphorus and shipped out to experimental stations across the country to be tested on growing plants. The amount of radioactivity found in the plants thus fertilized indicates just how easily each kind of fertilizer gives up its phosphorus, how it reacts to various soil types and how it can best be applied.



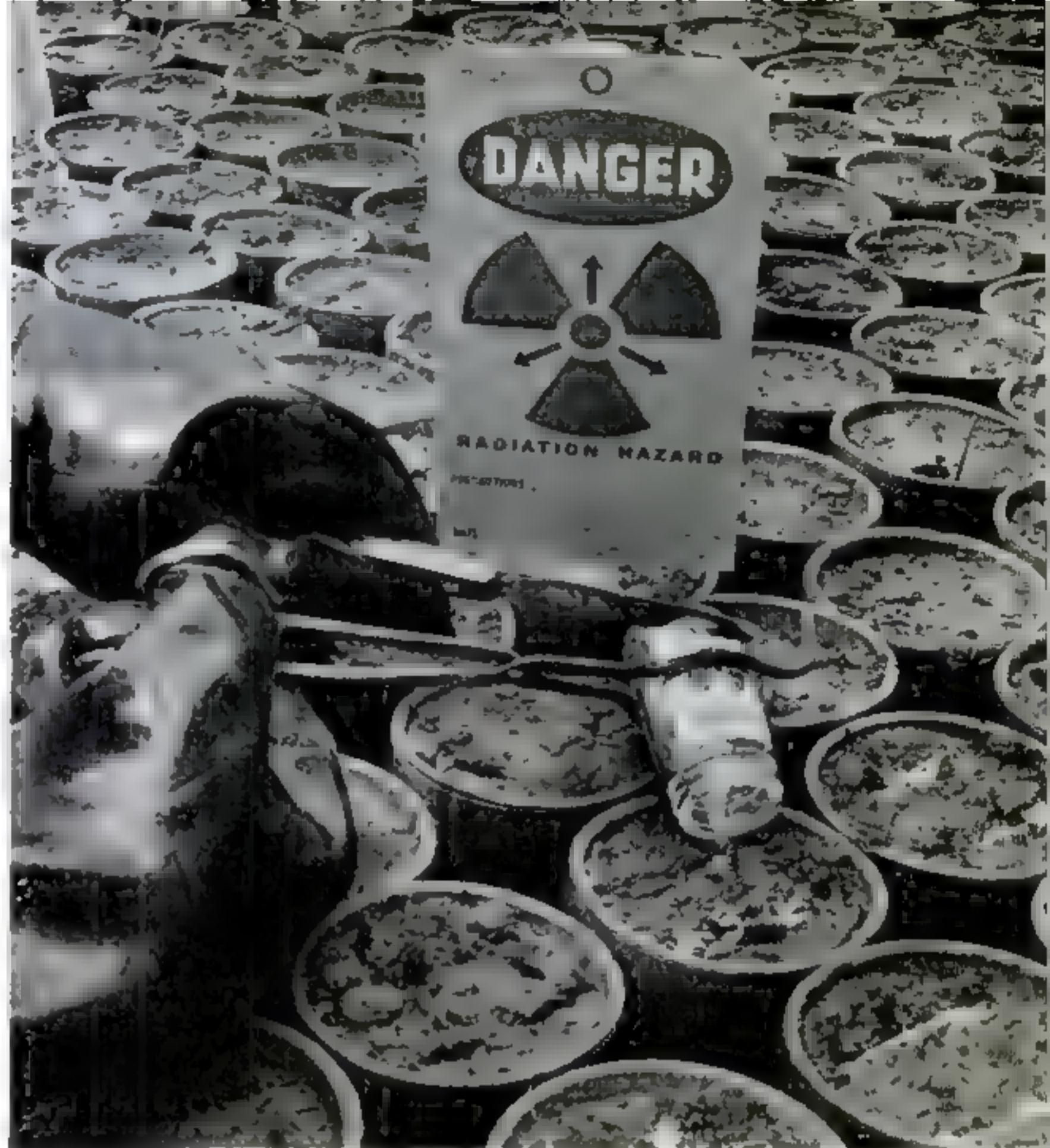
"HOT" BEAN LEAVES, treated with radioactive hydrogen sulphide, show how this chemical attacks leaf rust. In the radioautograph at left, made by placing leaf on a sheet of film, sulphide appears as pale area around healthy leaf's edge. In the diseased leaf (right) sulphide concentrates in rust spots and destroys them.

USE OF ISOTOPES AIDS AGRICULTURE

In agricultural research, where isotopes have been used ever since they first became available, the radioactive elements have speeded every project to which they have been applied. Their greatest value has been in plant-growth studies where they have enabled scientists for the first time to determine exactly how various chemicals are taken up and used by growing plants. By tagging chemical substances with radioisotopes, botanists have been able to measure the efficiency of both fertilizers (above, right) and weed killers (below, right). In addition, isotopes are being used to trace the metabolic processes of cows and the migrations of mosquitoes, which have made large areas of rich grazing land useless to ranchers. Radioactive forms of certain metallic elements, like molybdenum, zinc and iron, are being fed to plants to find out precisely what minute quantity of these elements is required for normal growth. Even the habits of rodents and other agricultural pests have been observed by tagging them with "hot" substances and charting their comings and goings with Geiger counters.



"HOT" MOSQUITOES, collected in California's Central Valley, are checked for radioactivity by Geiger counter. They were originally bred in pools containing radiophosphorus, which they absorbed. Later collections were made at a number of points throughout the area to discover the insects' range and travel pattern.



FERTILIZER IS TESTED in Department of Agriculture greenhouse, where it is applied in narrow bands alongside plants. When plants have grown, the amount of radioactivity they have absorbed is measured to show how much fertilizer they consumed. First tests proved band fertilizing is better than covering whole surface.



EFFECTS OF WEED KILLER are analyzed by spraying plants with a radioactive form of 2,4-D, then reducing them to powder and testing the powder for radioactivity. Samples of powder from stems, leaves, roots and buds are tested separately to reveal how much of the 2,4-D is absorbed by each of the plant's parts.



A ROLLING ROBOT WITH NINE FEET TREADS BACK AND FORTH OVER TEST SPOTS OF RADIOACTIVE FLOOR WAX AS GEIGER COUNTER (LEFT) SHOWS WHICH WAX STAYS ON BEST

ISOTOPES PROVE VALUE IN INDUSTRY

When the AEC first made its isotopes available, most engineers in industry ignored them and stuck to their old, trusted methods. But after seeing the results of radioactive research in the laboratories of scholars, a growing number of U.S. companies are now deciding that radioisotopes can make them money.

Many of industry's isotopes are being used to determine how different products stand up under wear. In the U.S. Testing Company laboratories (above) patches of radioactive floor waxes and paints are subjected to vigorous tests,

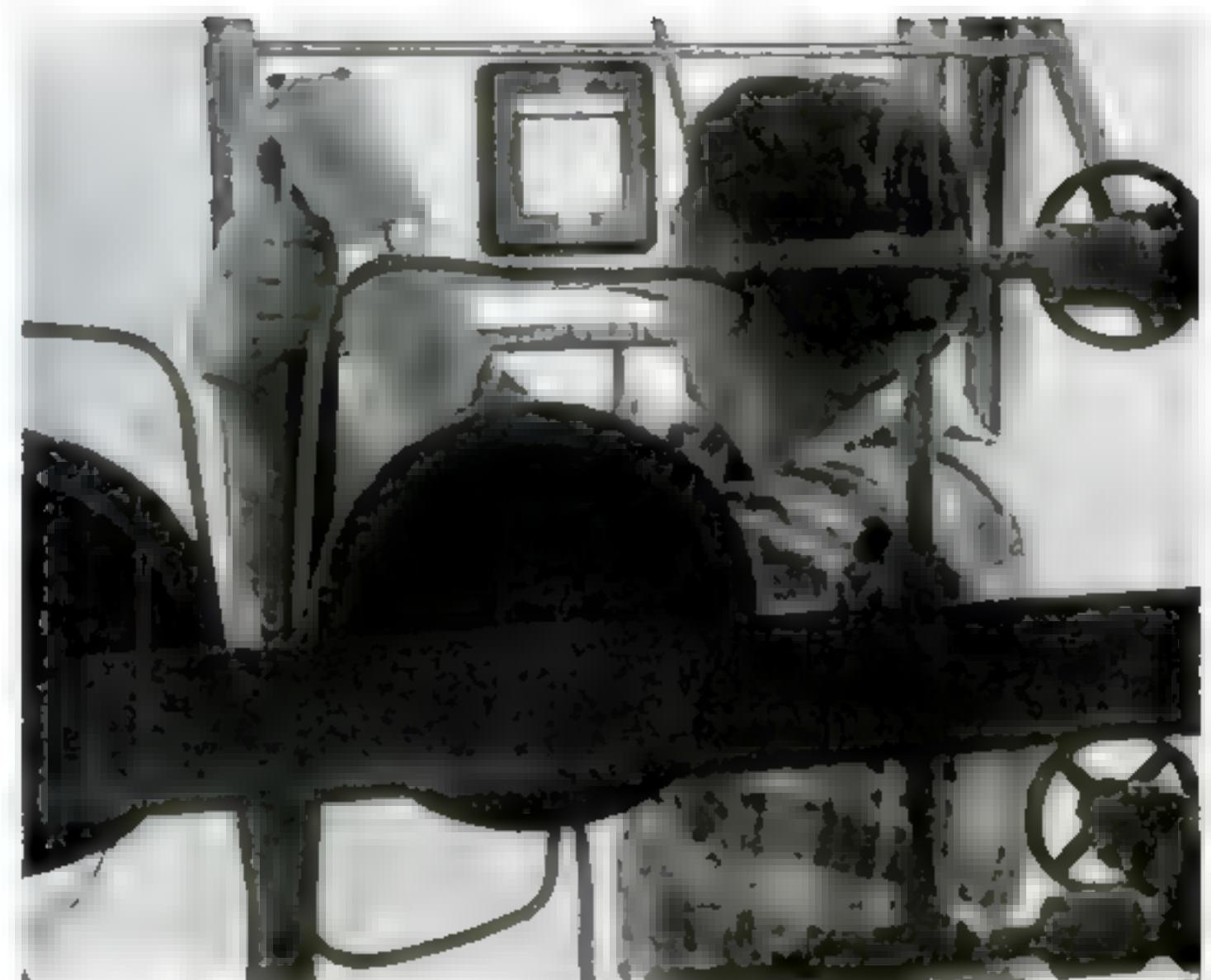
then checked with a Geiger counter to see how much radioactivity—and thus how much wax or paint—has rubbed away. Standard Oil of California tests the lubricating qualities of oils in engines equipped with radioactive piston rings. Infinitesimal particles of metal wear off the rings, drop into the oil and, since they are "hot," can be accurately measured for the first time. Engineers are also using isotopes as tracers to study more theoretical problems, such as what happens to the components of oil when broken down in "cracking" plants. Steel plants

are using the same techniques to learn how different metals combine in the smelting of alloys.

Probably the homeliest job tracers have yet performed is in Pure Oil's pipe-cleaning operations. Pipes carrying oil tend to clog with sludge, and torpedo-shaped slugs must be sent through the pipes to scrape them clean. Invariably a few slugs are lost in the maze of pipes and cause a serious stoppage until found. Now Pure Oil simply tags each slug with a bit of radioactive cobalt. If one gets lost a Geiger counter is set to work and locates the lost slug immediately.



TAGGING OIL by injecting dose of "hot" antimony into pipeline, Standard Oil engineer marks last few gallons of a certain grade of oil being sent

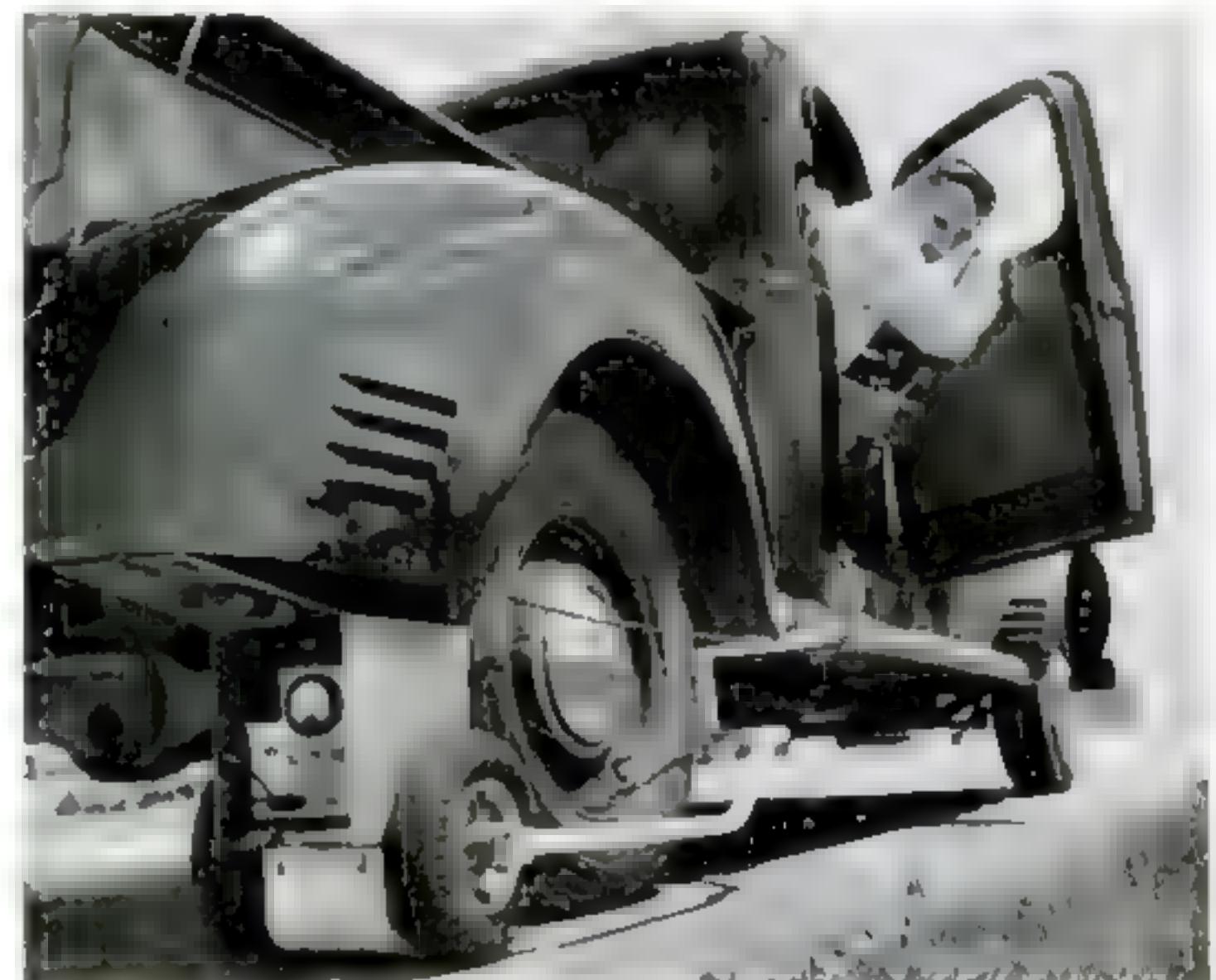


through line before switching over to different grade which goes through same pipes. At oil's destination 30 miles away, second engineer (right) is enabled to

shunt different grades into correct tanks at exact time by watching graph of radioactivity. Without tracers, quantity of oil at change-over point is mixed.



RADIOACTIVE GAUGE measures weight of paper at J. & J. Rogers Co. by measuring how much radiation from bit of "hot" strontium can penetrate paper and reach radiation detector above. It is also used on sheet steel in steel plants.



RADIOACTIVE RUBBER is used in B. F. Goodrich test tires. Tiny trailer behind the wheel carries a radiation counter, measures the exact amount and distribution of rubber left on pavement during skids, sharp turns and quick stops.

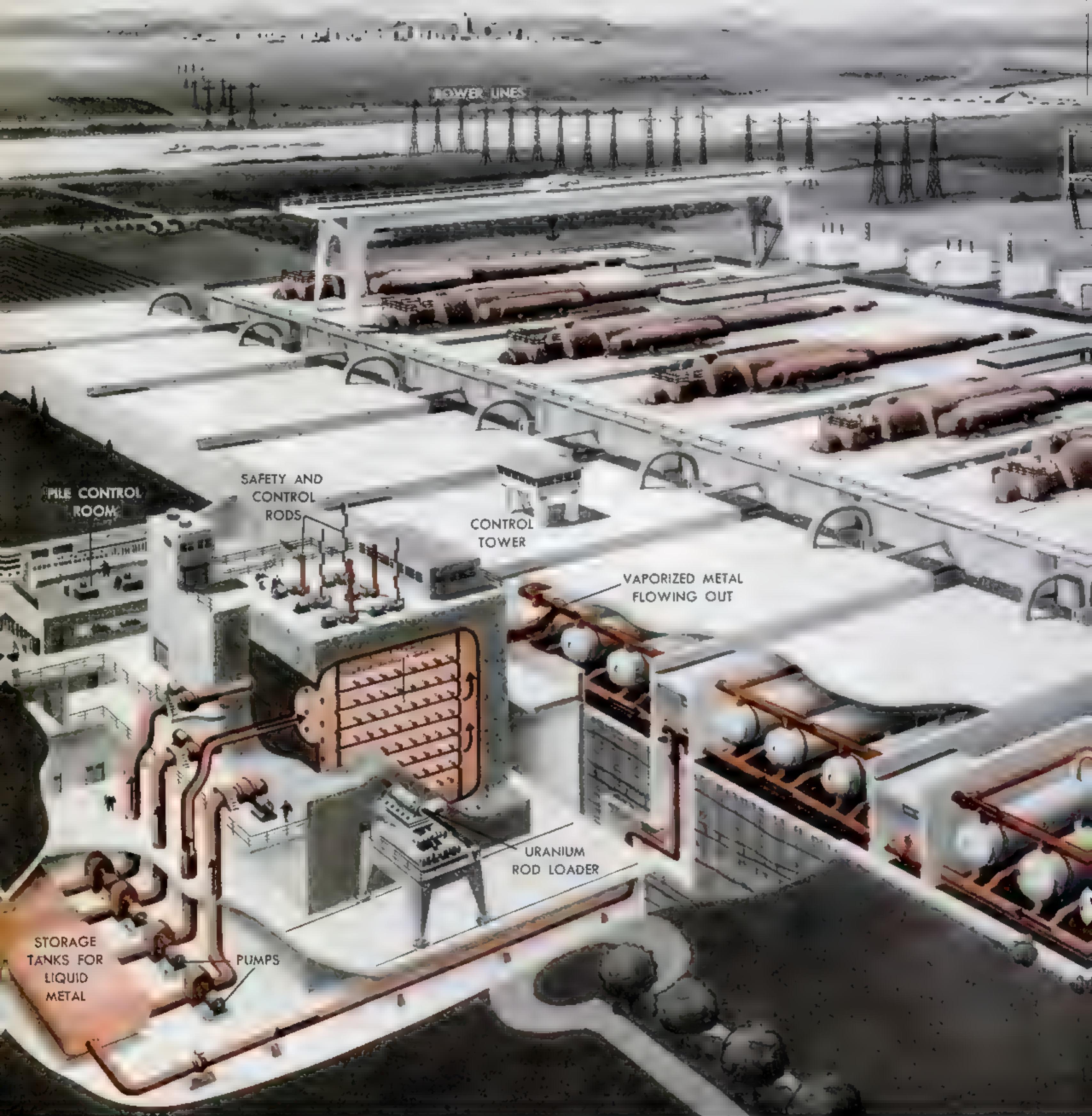


SOAKING A STUMP of new telephone pole in radioactive water, a Bell Telephone scientist begins series of experiments to determine the best method



of drying poles before wood preservatives are added. After the section of pole is saturated it is removed from the liquid. Radioautographs are then taken at

regular intervals and studied by scientist (right) to learn how the wood dries. The dark areas on the film show where most of the radioactive water is retained.

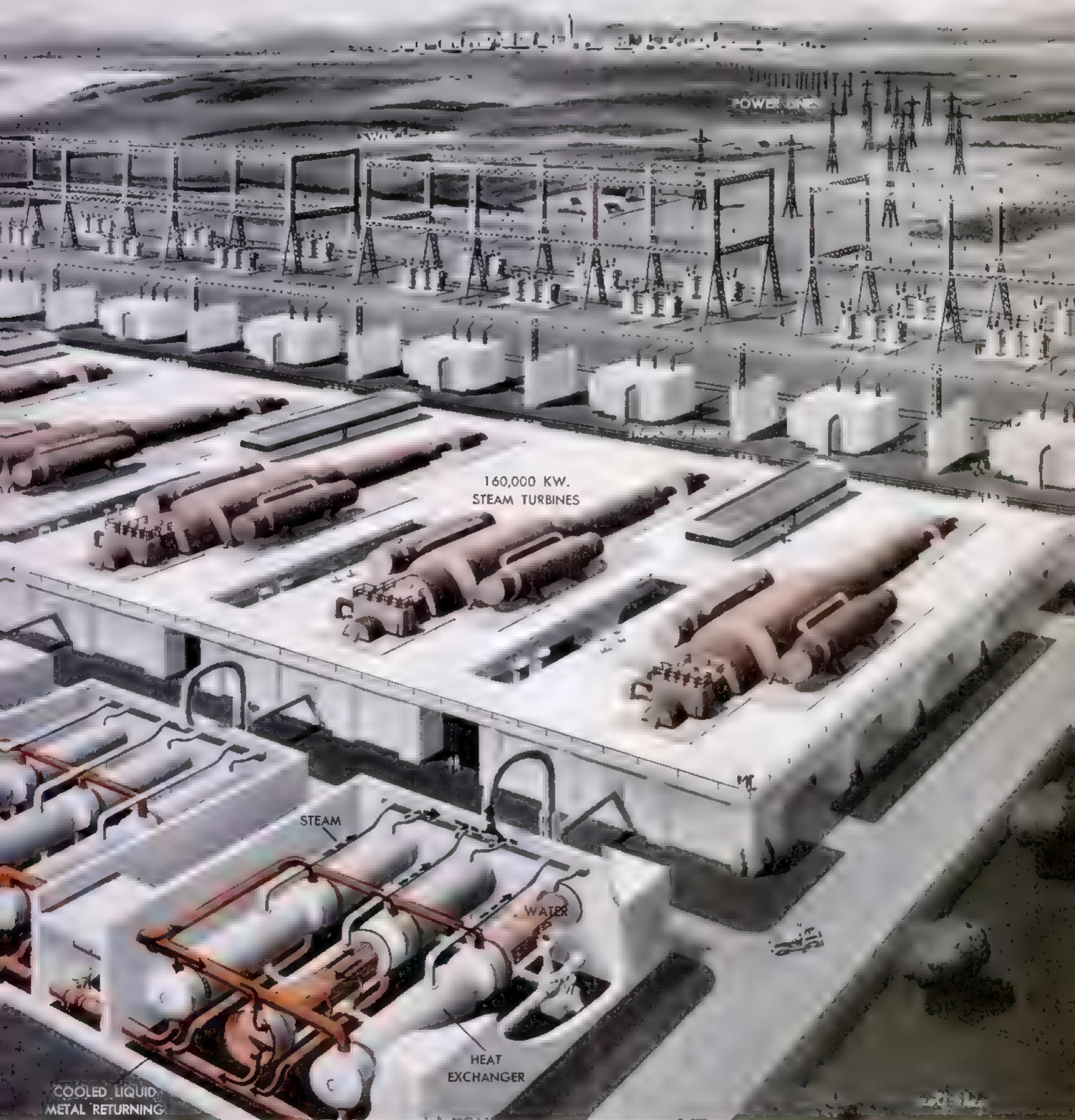


ATOMIC PLANT: MORE POWER THAN COULEE

The greatest benefits of nuclear fission will come when atomic power plants are built. How such plants might be built is shown in this drawing of a hypothetical installation designed for LtEE by scientists at M.I.T. and Stone & Webster Engineering Corporation. Although atomic power has been discussed for years, the necessity for stock-piling bombs left little of AEC's money for the necessary research. Now, in a changing military situation, the AEC

has been given money which will enable them to work on atomic power plants. The first plant they are attempting to build is a small portable power unit which can be used to drive a submarine. But in solving the problems involved in this first project, they will discover how a large-scale atomic power installation should be constructed.

An atomic power plant will make use not of uranium's explosive force but of the tremen-



dous heat produced in nuclear reactions—using this heat to create steam which will drive conventional turboelectric generators. The pile (*left*) consists of a 35-foot cubic block of beryllium oxide, honeycombed with channels to hold rods of uranium or plutonium. When the plant is operating, unstable atoms in the rods disintegrate spontaneously, releasing streams of neutrons which start a chain reaction. The layers of beryllium oxide and cadmium control

rods, which can be dropped into the pile, slow down the neutrons and control the reaction so the temperature in the pile does not rise much above 1,000° C. Liquid metal (shown above in red) is pumped through the pile, absorbs heat, reaches the boiling point and turns to vapor. Then the hot metal gas flows out to a maze of small heat-exchanger pipes set in water boilers converting the water to steam, which turns the generators and produces electricity.

How soon will atomic power plants be built? Some scientists believe the necessary research will take 20 years. On the basis of current costs an atomic plant like that shown above could probably be built for about \$150 million, about the same as the cost of Grand Coulee Dam, and would produce 50% more power than Coulee. Once built, it could operate six times more cheaply than oil-burning steam-turbine power plants which now furnish most U.S. power.

Apprentice Goddesses

HOLLYWOOD HOPES SOME OF THESE DOZEN DAMSELS WILL BE BIG STARS

Like a sculptor in a polytheistic tribe, Hollywood can never afford to leave off making goddesses. Though incense is still rising to the Stanwycks and Davises, who were deified 20 and more years ago, and to the Grables and Turners who followed them a decade later, and although the June Allysons and Elizabeth Taylors are hardly settled on their pedestals, a parade of possible successors must be kept treading on their heels. On these pages LIFE presents an even dozen of these aspirants. They have been around

the movies for anywhere from nine months (Mala Powers) to seven years (June Haver); their faces are familiar or almost familiar to the public. Neither they nor anyone else can be sure at this particular moment of time whether they will click and soar into the big time or sink away to a limbo of domesticity. But out of such a group as this, the movies count on creating the rare and splendid star that keeps Hollywood's name shining in the world and the cash coming with steady clank across the box-office counters.



A BEVY OF BEGINNERS

Dressed to kill and standing straight at the ready like so many debutantes on the eve of the big night are five young ladies who began inching their way into movie prominence in Hollywood in 1950. Left to right, they are: Pavlis Kirk, 22, who played a rich girl in *Our Very Own*; Debra Paget, 17, who lived and died

as an Indian girl in *Broken Arrow*; Debbie Reynolds, 18, who was the "Boop-a-Doop Girl" in *Three Little Words*; Jean Hagen, 25, who took it on the chin as the tough girl in love with a hoodlum in *Asphalt Jungle*; and Nancy Olson, 22, who did likewise as the nice girl in love with a screenwriter in *Sunset Boulevard*.



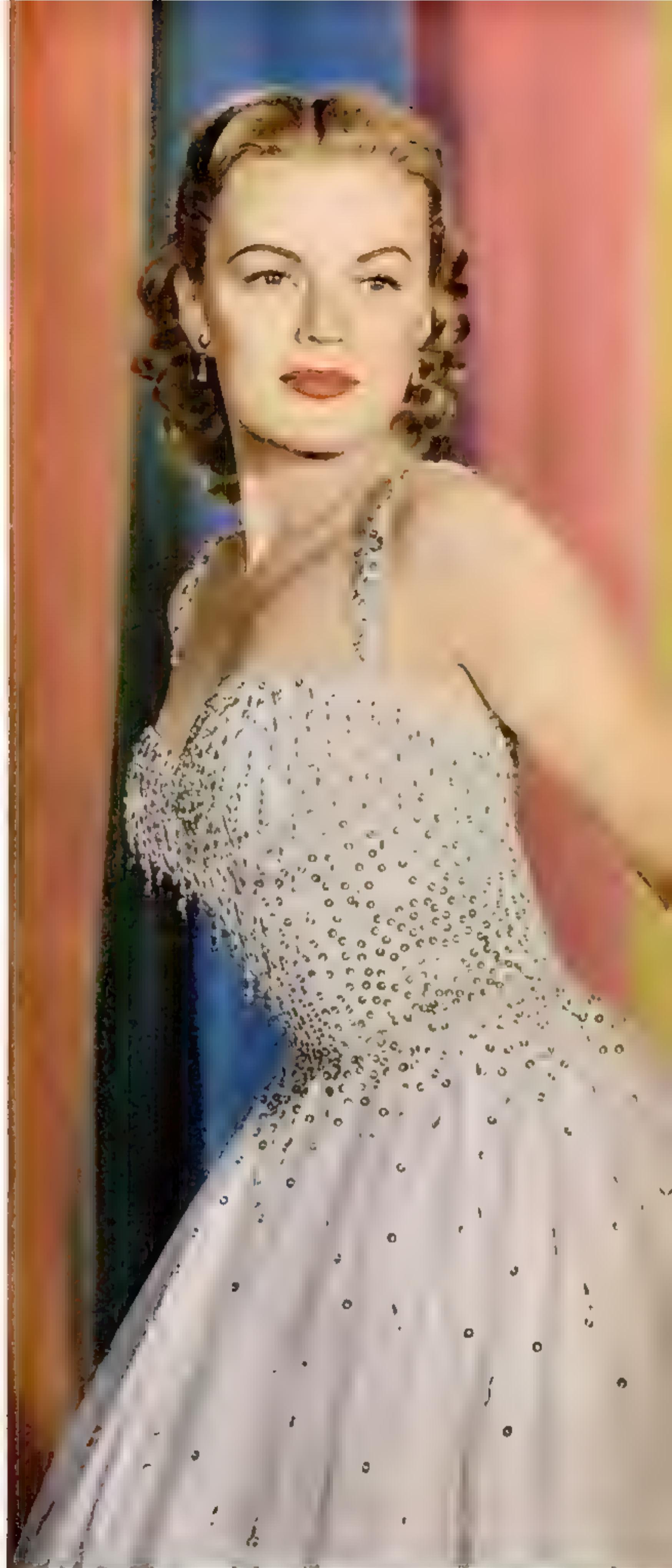
BUTTERSCOTCH-AND-SPICE

Eleanor Parker, 20, is a sweet, ultranormal Midwestern girl who has spent most of her movie career playing heavy, dramatic roles. Her performance as an embittered girl in *Gold digger* (1950), which won her an international acting prize, has made her one of the most promising of the properties at Warner Brothers' studio.



BUSTY BERNHARDT

Marilyn Monroe at 22 seems to have her future assured. It has been discovered that just by standing still and breathing she can bring men running from all directions. And after small but pungent roles in *A spot of trouble* and *All about Eve* her studio, 20th Century-Fox, is convinced she will be a fine dramatic actress too.



JUNIOR GRABLE

June Haver, 24, has been in movies for seven years, yet has never been seen in a black and white film. She is strictly a Technicolor girl, and eight of her 12 shows have been musicals. All along her stock in trade has been a wholesome, all-American charm which makes her film career the next best thing to Betty Grable.



FUGITIVE FROM CHEESECAKE

A wartime pin-up queen, Barbara Bates, 24, was dropped by one studio for refusing to keep lifting up her skirts in peacetime. She began a new and more dramatic career for another studio, clothed to the ankles, as the young fan at the close of 1950's *All About Eve*.

MOONLIGHT AND ROSES

Arlene Dahl of M-G-M has a Technicolor-perfect face which needs only a dash of lipstick to make it a dream of summer floating onto the screen. Wasted up to now in westerns and frothy musicals, she will someday come into her own in moonlight-and-roses roles.





"THE DUMBEST FACE"

Jan Sterling got her first big stage role playing the latty blonde in the Chicago company of *Room Yesterday* because — and — "I have the dumbest face." Now married to Paul Douglas, the brainy old strumpet, a screen actress who's well known for her hard and sexy girls — distastefully dour — says Paramount Pictures.

MANY CALL BUT FEW ARE PICKED

Hollywood has its scouts out everywhere, but its best scout is its own legend. In every city and at every crossroads through the land girls by the millions are waiting to be discovered while running a department store elevator like Dorothy Lamour. Or while sipping a nickel soda, like Lana Turner. Even if they are not raving beauties, they still have a chance; the studios have dress designers, dentists, hairdressers, posture instructors, charm coaches who can mold the most unlikely material into the requisite form divine.

Year after year the studios receive an avalanche of applications from girls asking for the job that will make them stars. M-G-M alone gets 5,000. Casting directors winnow the number down to anywhere from 20 to 100 per studio during the year. On these the studio feels it is worth spending the \$1,500 or so which it costs to give a screen test. Perhaps half a dozen of those tested will strike the eye of a producer or director and be given a part.

Like a frantic oil prospector always drilling new wells, Hollywood goes on digging for the girls. But there is some suspicion that the rich pools are drying up. It has become a common complaint that the life seems to have gone out of the new generations, that though there are plenty of pretty girls in the movies, and some of them get to be stars, there are none who can replace the flamboyant personalities of the early sound days, the Crawfords, the Lombards and Harlows, much less the passionate queens of the silent days. The new stars are at once less down to earth and less aloof. Hollywood has changed like the American life it so peculiarly reflects. It is more settled and less sure of itself than in the gaudy '20s. Instead of a rough-and-tough background in show business, the girls nowadays tend to come straight from school or from serious little theater groups. Instead of leading the exotic fairy-tale private life of the old days, they are eager—or their press agents are eager for them—to pass as typical American small-town wives and mothers.

It may be that the old days of movie glamour are gone forever, and that is one more cross Hollywood has to bear in these melancholy days of television and tobogganing receipts. It goes on gamely trying just the same; and if one of the dozen girls in this group lives up to her studio's hope—if a Marilyn Monroe really achieves the universal sex appeal of Jean Harlow, if a Debbie Reynolds can dance into as many gay hearts as Ginger Rogers, if a Debra Paget can melt as many sad ones as Janet Gaynor—it will feel that the old system is still strong enough to survive.



DUELISTS' DARLING

Mala Powers, 20, was discovered last year by Ida Lupino and cast in a picture called *Outrage*, which tried to ride on the wave of "daring" films. It was about a California girl who got raped. Her current role is the lovelorn French girl, Roxane, whose love scenes are sandwiched in among the duels in *Cyrano de Bergerac*.

THE Chipmunk who found



Once upon a time a young chipmunk named Everett was graduated from college and came home to visit his father, an elderly gentleman who lived under an oak log near Covington, Ky.

The first night he was home, Everett swaggered down the tunnel into the burrow dining room and helped himself to a big meal of his father's choicest seeds. Then he selected one of his father's best cigars, a full inch long and all Havana.

"It's nice to have you home again, son," Mr. Chipmunk said.

"Yep," said Everett. "Must be."

"But," said Mr. Chipmunk, "I suppose you'll soon be leaving to look for a job."

Everett flicked his cigar ash onto the rug. "Not a chance, Pop. Definitely not a chance. The fact is, I don't like the whole economic system today."

Mr. Chipmunk twitched a whisker ever so slightly. "What's the matter with it, son?"

"No security," Everett chirped. "The way I see it, the state ought to take over. Give you a safe job, give you a snug, warm place to live, give you plenty of seeds to eat, give you free medical care, give you free clothes, give you—"

Mr. Chipmunk gently raised a protesting paw.

"Now, just a minute, son. I'm proud of the American system. Lived by it all my life. I've worked hard, managed to save a few seeds every year, and we've not done too badly. The mortgage on our log is fully paid up. I was able to send you through high school and Chipmunk Aggies. And in a year or two, I think I can retire—"

Everett grinned at him. "Wise up, Pop! Wise up! Why beat your brains out? If the state'll give you everything, what's the sense of scurrying all over the forest trying to earn a buck?"

Mr. Chipmunk's tail snapped irritably. "Now listen, son. In the first place, stop calling me

Complete Security

Pop. In the second place, you'd find that if you got *complete security* you'd lose your freedom. If the state were to give you everything, it would control everything. Control you body and soul. I don't believe you'd like that."

Everett burst out laughing. "Stow it, old timer, stow it! You just haven't got the word yet, that's all. But you'll learn." He whacked his father a jovial blow across the stripes. "Say, sport, how about lending me the car tonight? Big dance going on down in the meadow."



Mr. Chipmunk reached into his pocket for the keys. "Drive slowly, son. Lots of rabbits tearing around in cars these days. You can't be too careful."

"Don't worry about this lad, Pop. I can drive circles around any little old rabbit that ever came down the path."

Next morning at 7 o'clock the phone rang beside Mr. Chipmunk's bed. "Sorry to bother you, sir," said a voice, "but your boy had an

accident last night. Smashed up a couple of rabbits in a convertible. Frankly, sir, he'd been drinking. We had to put him in jail."

"I'll be right over," Mr. Chipmunk said tensely.



Twenty minutes later Mr. Chipmunk arrived at the jail, a formidable structure the chipmunks had built by inverting an iron wash tub and imbedding the rim in solid rock. The Sheriff led him to Everett's cell. Everett was alternately yelling and gnawing on the bars. "Lemme out!" he squawked. "Lemme out of this place!"

Mr. Chipmunk stared sadly at his son for a moment. Then, suddenly, he gave a little chuckle.

"What's funny?" Everett screamed. "Get me out of here!"

Mr. Chipmunk put a paw through the bars and patted Everett's head. "Tell me, son," he asked, "are they keeping you snug and warm?"

"Sure, but—"

"Are they giving you enough seeds to eat?"

"Sure, but—"

"Are they giving you free medical attention?"

"Medical attention, he says! Get me out!"

"And I dare say the good Sheriff will find a safe, easy job for you—on the rockpile. Am I right, Sheriff?"

"Right," said the Sheriff.

"And I suppose that the Sheriff will even give you a free suit of clothes—a little number with horizontal stripes."

Everett looked aghast at his father. "Cut the comedy, Pop!" he wailed. "Get me out of this place!"

"No, son," said Mr. Chipmunk. "I'd like you to stay right here for a few days. I think you'll find it a rewarding experience."

"Why?" Everett screamed. "Tell me why, Pop!"



"Because, my boy," Mr. Chipmunk said, "it'll give you a very good idea what it's like to get *complete security* from the state."

Mr. Chipmunk winked at the Sheriff, put on his hat, and walked out of the jail.

THIS LITTLE FABLE was published several months ago in the Gulf Oil Companies' employee-stockholder magazine, *The Orange Disc*. Since it appeared, Gulf has received an extraordinary number of requests for permission to reprint it in various other journals and pamphlets; it has even been adapted for a television show. Because it has evoked such widespread interest, and because we ourselves so firmly believe in the moral it points, we are publishing it here.

GULF OIL CORPORATION
General Offices, Pittsburgh, Pa.

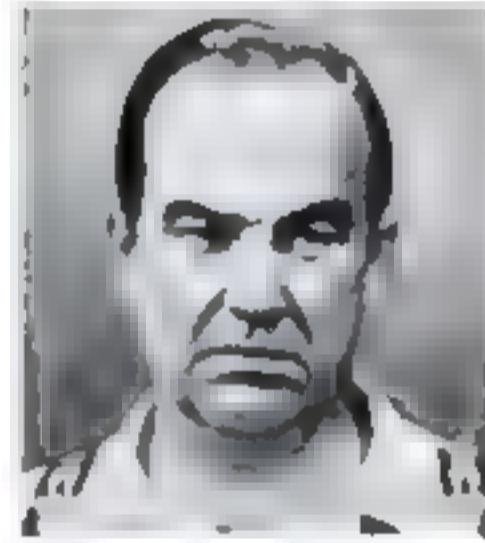




JUDY HOLLIDAY..... is beautiful..... blonde..... brazen..... and oh-h-brother!



WILLIAM HOLDEN..... is smooth..... smart..... smitten..... and smoochy!



BRODERICK CRAWFORD.. is rich..... raucous..... rowdy..... and a riot!

Broadway's outstanding
hit ... now a perfectly
swell motion picture!

COLUMBIA PICTURES presents

BONNIE LIES IN TOWN

starring

JUDY HOLLIDAY · WILLIAM HOLDEN · BRODERICK CRAWFORD

Screen Play by Albert Mannheimer · From the Celebrated Stage Play · Produced by S. SYLVAN SIMON · Directed by GEORGE CUKOR



MARINER SCOUT Arlene Nelson, 17, from Seattle, takes the wheel of the *Age-Old* in San Francisco.

West Coast Youth

BRAWNY AND BUOYANT, IT IS A BRIGHT ASSET FOR THE U.S. FUTURE

The Pacific slope of the U.S. is not only a wonderful place to grow old and die, as Iowa used to cover long ago. It is also a wonderful place for kids to grow up and live. This is a prime reason why U.S. population, at an annual rate of birth and migration, is growing by a thousand heads and millions. Just as the West Coast tends to produce bigger and better fruits and vegetables, it is producing a healthier and statistically bigger crop of youngsters. In California, for example, studies show that at every age the children are at least one-half inch taller and four

pounds heavier than the U.S. average, that they mature half a year earlier and that, thanks to the public junior college system, they pursue their schooling two years farther.

From the sun-drenched valleys of Southern California to the rain-drenched forests of Puget Sound, this new race of children, of whom some three million are now in school, have one big lane in common. It is a lust for the outdoors, and the nearly scenic coast offers kids a maximum of temptation and a minimum of inconvenience in fulfilling it. The bumper crop of

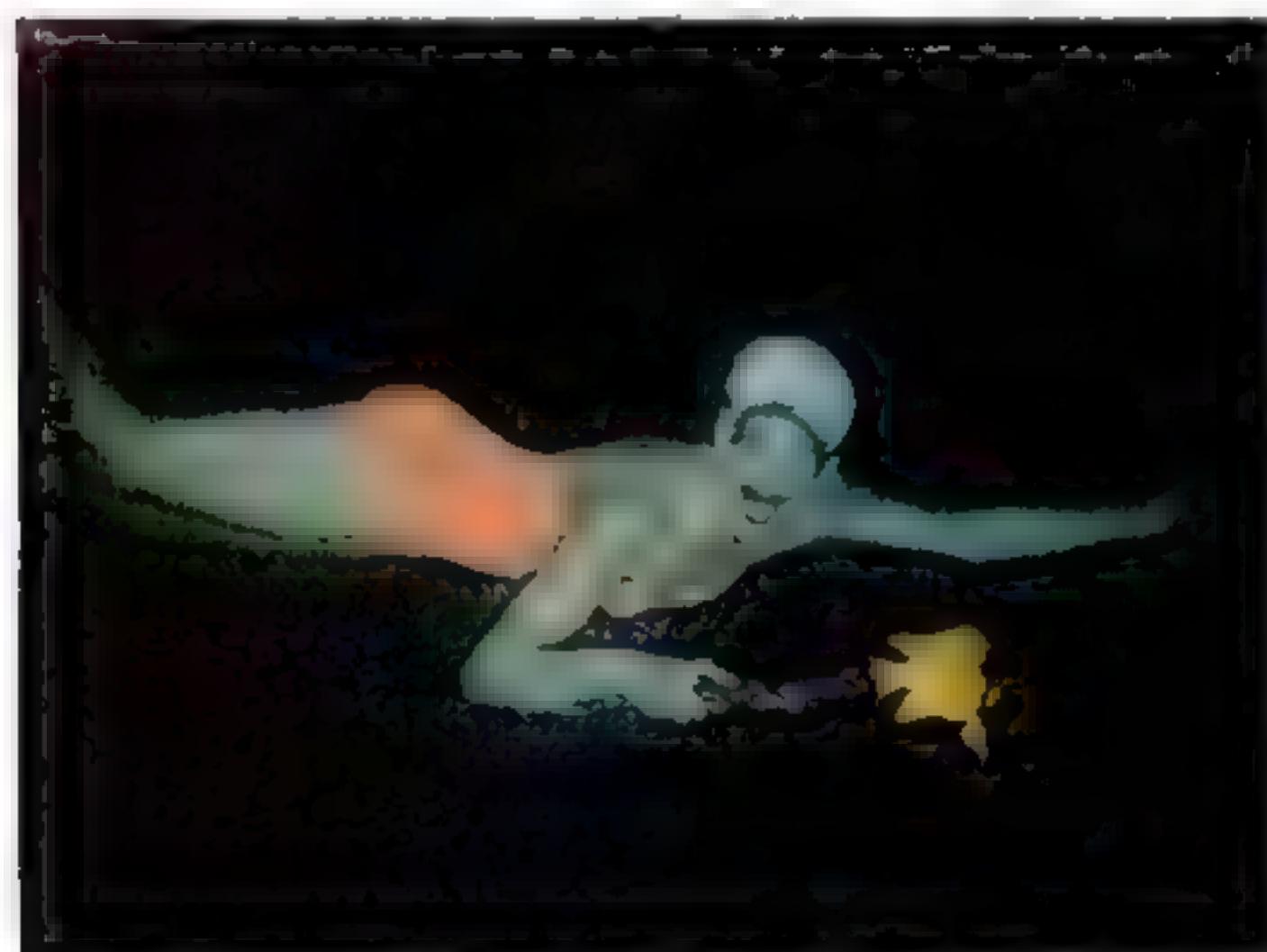
youngsters radiates a buoyant optimism of spirit, a supreme confidence in its ability to get on in the world. This current of self-reliance is without intellectual basis; it may spring in part from youth's closeness to nature, from intimately living with wind, sand and sun.

On these pages LIFE shows some splendidly healthy West Coast youth energetically using its splendid outdoors. What use this generation eventually will make of its own tremendous energy, heaven only knows, but properly directed it should be sufficient to move the world.

PHOTOGRAPHED FOR LIFE BY LOOMIS DEAN



A GRASSY KNOB on Mills campus, Oakland, serves as practice stage for modern dance students Debby Choate, Pat George and Pat Stockton.



A MURKY DEPTH off Catalina Island is spear-fishing ground for Joyce Packard, 17, of Fullerton, Calif. Her rubber-triggered spear has just gored a garibaldi.

THE GIRLS ARE DEVOTED TO A CULT OF THE BODY

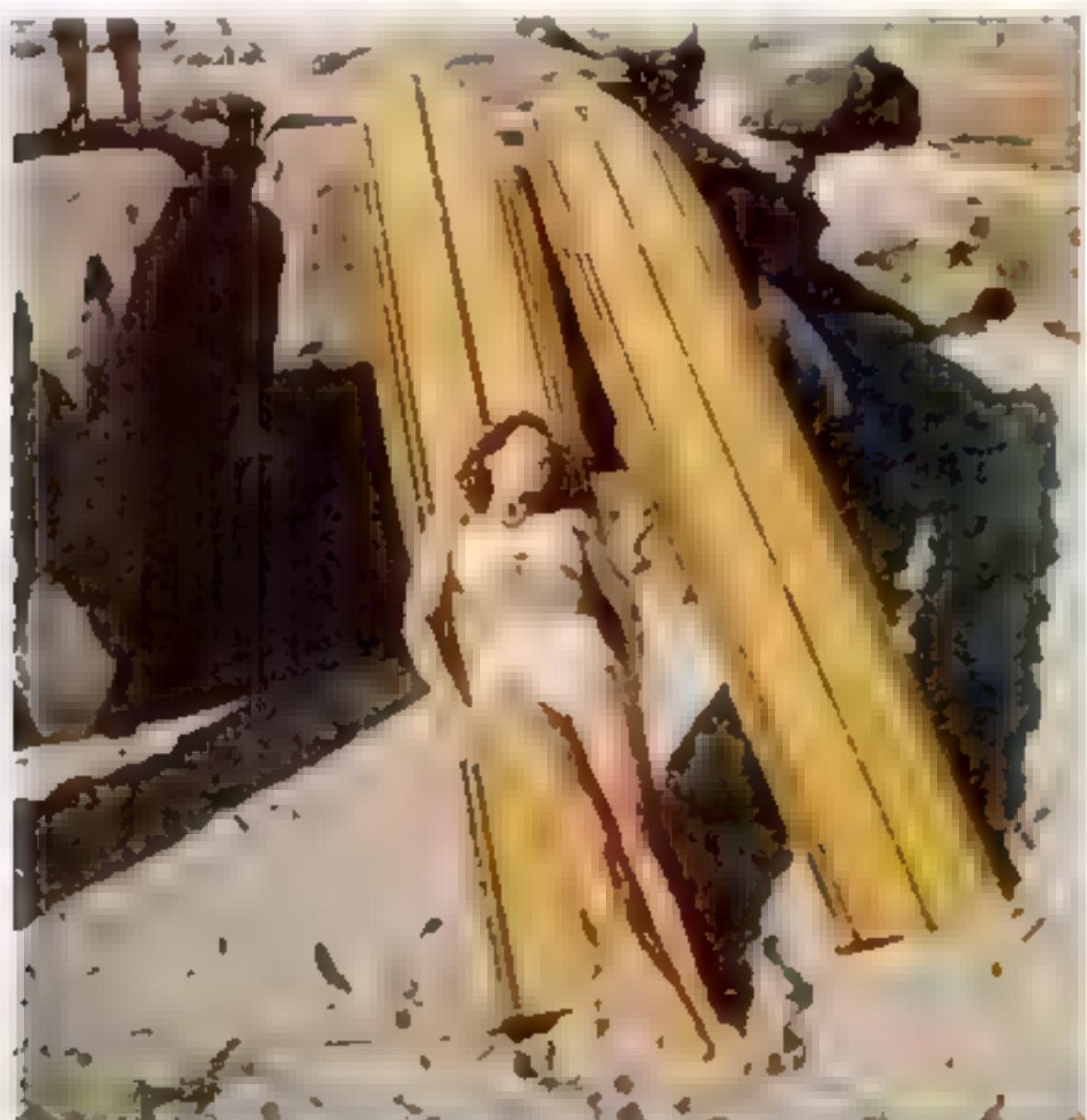
There are two ways of looking at the strenuous outdoor life that the girls on these pages, and West Coast youth in general, live with almost fanatic zeal. One is expressed by an old Spanish saying: in the lands of the sun the soul expands. The other was expressed by Rhymester Theodore Spencer, who wrote in frightened tones that the women of sunny California "are splendid women with nothing, nothing, nothing behind their eyes." Certainly the preoccupation with the sun that draws Western girls outdoors dictates their explicit though perhaps unworldly display of sex and amounts to a cult of the body. (It may also account for the fact that California girls are stronger than Chicago boys.) Yet the environment does more than bless them with splendid, desirable bodies. It gives them the expansive spirit that is becoming a regional trait. And nobody can prove that soul expansion and chest expansion are mutually exclusive.



A SNOWBANK receding from Timberline Lodge, Mt. Hood, Ore., in June, focuses sun's heat on Jane Mackey, 19, skier from Portland.



A GAUDY GARDEN at parents' home in Poulsbo, Calif., must compete with tennis, swimming, bicycling, and school for the time of busy Mary Bragg, 16.



A LONG SURFBOARD helps Marion Heatherly, 24, wife of a La Jolla, Calif., bungalow, deepen her suntan at Wind and Sea Cove.



A BOUNCY TRAMPOLINE at The Desert Inn, Palm Springs, tosses Dolores Dick of Los Angeles high in the air as she develops muscles and timing for diving.

WEST COAST YOUTH CONTINUED



BOILING down a slope of wet snow on Mt. Hood, two Oregon college students practice a assist in preparing for annual Portland Rose Festival ski tournaments.



RIDING a wave near La Jolla, these surfers get set for a half-mile, 40-mpg glide to shore, after which they will paddle their surfboards out to do it over again.





FLEXING their muscles for their mutual admiration and for that of passers-by, these California youths find the days go fast on "Muscle Beach" at Santa Monica.



ROARING over the top in a Los Angeles motorcycle hill-climb event, Harold Lair, 20, casually risks his English machine and his neck for a 7-second thrill.

THE MALES ARE AT HOME IN SURF, SUN OR STIRRUP

A free-and-easy display of young bodies comes as naturally to Western boys as to Western girls. But the males at left, who might gladden the eye of a Bernard Macfadden while lifting the eyebrow of a Sigmund Freud, are evidence that the body cult can be carried from the sublime to the absurd. So are the surfers (center, above) who want only enough food and gasoline to keep body, sun-expanded soul and panel truck together for trips from one beach to another. Most Western boys, however, like the horsemen of Thacher School and the skiers of the Northwest, keep the body more nearly in its place.



WHEELING around turn in a stake race, John Reiner, 18, Jim Holman, 17, and Walt Foster, 18, compete in gymkhana at horse Thacher School in Ojai Valley.



LIFE WAS NEVER THIS GOOD FOR CHILDREN BEFORE

Whether moving at horseback pace or at hot-rod speed, the daily life of West Coast youngsters is crowded with a special kind of experience. Nowhere else in the country can youths find such an extravagant combination of mountains to climb, slopes to ski, waters to sail, dry lakes to race on and beaches to flop on—all handy to metropolitan areas. These environmental fac-

tors, together with high mobility afforded by the auto, the plane and the relatively high per capita income of the West, make possible a new way of life that no generation of children could ever experience before. It is significant and happy that many of them, after day's finish school, walk nothing more than to settle down where they grew up to live that way the rest of their lives.



WEST COAST YOUTH CONTINUED



ON THE TRAIL, sixth- to ninth-graders of Opi Valley school walk 7 miles to Piedra Blanca to spend a week camping out after studying rock strata.



SAFE IN CAMP, boys and girls gather around a fire to sing and roast marshmallows. Their geology trip has time for fun, too, and playing Commando among big rocks.



AFTER CLIMB on Mt. Rainier, Nancy Luft, 16, who goes to Roosevelt High, Seattle, rests with Dick Dotley, Bob Grant, and boyfriend Leigh Rabel, 17.

BEFORE A RACE, Altadena kids tend "Class B Modified" hot-rods. Unlike some, they are expert mechanics, race on safe tracks, not on the highways.





FRATERNITY PARTIES, like most parties at West Coast high schools and colleges, can turn into awesome Hollywood-scale production numbers. This one,

with a Mardi Gras theme, was held in back yard of the Delta Tau Delta house at U.S.C. Deltas hired a band to play Caribbean tunes—part 50% of their party.



He depends on you to keep his thinner skin from harm

Treat his thinner skin with gentle care

You want to spare his thinner skin discomfort, so you carefully check his bathroom tissue for 3 "tender skin" qualities. "Old Linen" softness that doesn't chafe. Quick absorbency for immaculate cleansing. And just the right strength to resist tearing or shredding.



You use a special brush for his baby hair—one that is fine and whisper-soft. His skin is so tender, so easily irritated, a grownup's brush could scratch and "hurt" it. Your baby's skin is thinner than yours, you know—modern skin studies show it can be injured more easily. From his head to his tiny toes, your baby's skin needs your constant care.



ScotTissue's special "tender skin" qualities make it the ideal bathroom tissue for your baby. And you will find too that ScotTissue's greater value makes it the perfect choice for the whole family. You get 1000 generous full-size sheets to a roll. ScotTissue goes further, lasts longer.

*Trade Marks. ¹ScotTissue, ²Soft as old linen, ³Reg. U. S. Pat. Off.

1000 Full Size Sheets—Soft As Old Linen



TWO COTTON PICKERS WORK AT NIGHT NEAR FIVE POINTS, CALIF. THEY CAN PICK FOR ABOUT \$5 PER HUNDRED POUNDS AGAINST \$10 FOR HAND PICKING

MECHANICAL PICKERS SWARM ALONG WHITE ROWS OF COTTON AT CROCKET AND GAMBOGY FARM. DARK ROWS ARE ALREADY PICKED. NEXT YEAR THE FARM

COTTON REVOLUTION

California turns to machines to boost the nation's stock pile

Counting its cotton stock pile at the year's end after a poor 9.8 million bale crop, the U.S. found itself very short; next year's crop, said Washington, would have to hit 16 million bales. At this news the planters in California's San Joaquin Valley set out to break their own records. In 1950, on 650,000 acres, they had produced nearly a million bales. Next year they would plant a million acres, a new climax in California's cotton revolution.

In 1947, almost without the country's notice, California became a cotton state. Cotton out-valued its citrus fruit crop by millions of dollars and has done so ever since. The San Joaquin Valley's huge yield per acre, almost three times the national average of 269 pounds, has pushed California up to fourth place as a cotton-producing state. Its climate is too dry for weevils. Its irrigated farms are independent of weather, and its flat fields are ideal for machine harvesting. California cotton production is now the most highly mechanized in the world. There are already 1,400 cotton-picking machines in the valley, and next year there will be more, lumbering down the cotton rows and gulping more bolls a day than 40 men can pick.



BALES OF COTTON STAND STACKED FOR PROCESSING OUTSIDE ONE OF THE VALLEY'S 134 COTTON GINS

WILL PLANT 16,000 ACRES IN COTTON. PICK CROP WITH ITS 48 MACHINES AND 1,000 HAND PICKERS. MACHINES COST UP TO \$10,000, PAY FOR THEMSELVES IN YEAR

BIGGEST PRODUCER



GM typifies U.S. genius for size plus efficiency

General Motors Corporation, which is the biggest, most successful and most profitable manufacturing enterprise in the history of man, resembles another historic edifice, the Egyptian pyramid. Like the pyramid, the corporation's outline has become so widely familiar that its innate character is generally forgotten; its size, especially when viewed at close hand, is too titanic to grasp. In 1950 GM had not only its most profitable year but the most profitable year of any corporation any time—the net income reading about \$900 million. In that year GM made almost half of all the 6,650,000 automobiles built in the U.S., as well as 647,800 trucks, 2,200 buses, over 2,000 diesel locomotives and millions of other products like electric refrigerators, jet engines and oil burners. It employed 516,000 wage or salary earners, virtually enough to support a city the size of Cleveland, indirectly employed about 200,000 more in the privately owned sales agencies for its products and by spending about half its gross income of \$7 billion on materials and services gave employment to possibly 250,000 more. Its tax bill (\$800 million) is bigger than all the federal income taxes paid collectively by 14 of the states.

This 42-year-old colossus was born of a handful of companies like Buick, Oakland, Maxwell-Briscoe and Rapid-Truck, which, gathered together by Financier William C. Durant, grew to strength during the prosperous '20s, outrode the conflicts of the troubled '30s and emerged in the wartime '40s as a great armorer. It achieved its commanding position by farsighted policies which have become patterns for such other companies as are in a position to emulate them: decentralization of facilities (pages following), a broad research program whose benefits, with others, it lavishly dispenses to its divisions (*opposite page*), an increasingly enlightened labor policy and a sharp insistence on manufacturing efficiency and soundness of product. One result is that GM can deliver so intricate a package of labor and metal as a Chevrolet sedan for 40¢ a pound, while so simply-produced an item as a pound of hamburger costs 69¢.

In peace GM's great skein of financial and manufacturing threads is inextricably interwoven with the U.S. economy. In war, or even mobilization, it is less a private enterprise than a public agency. Today its top men (*left*) await orders to become once again national armorers.

TOP MEN of General Motors include Board Chairman Alfred P. Sloan Jr. (*right*), President Charles Erwin Wilson (*center*) and Albert Bradley, who is executive vice president in charge of finance, shown here at a stockholders meeting. Three other executive vice presidents complete the top of the hierarchy.

HOW GM'S GARDEN GROWS

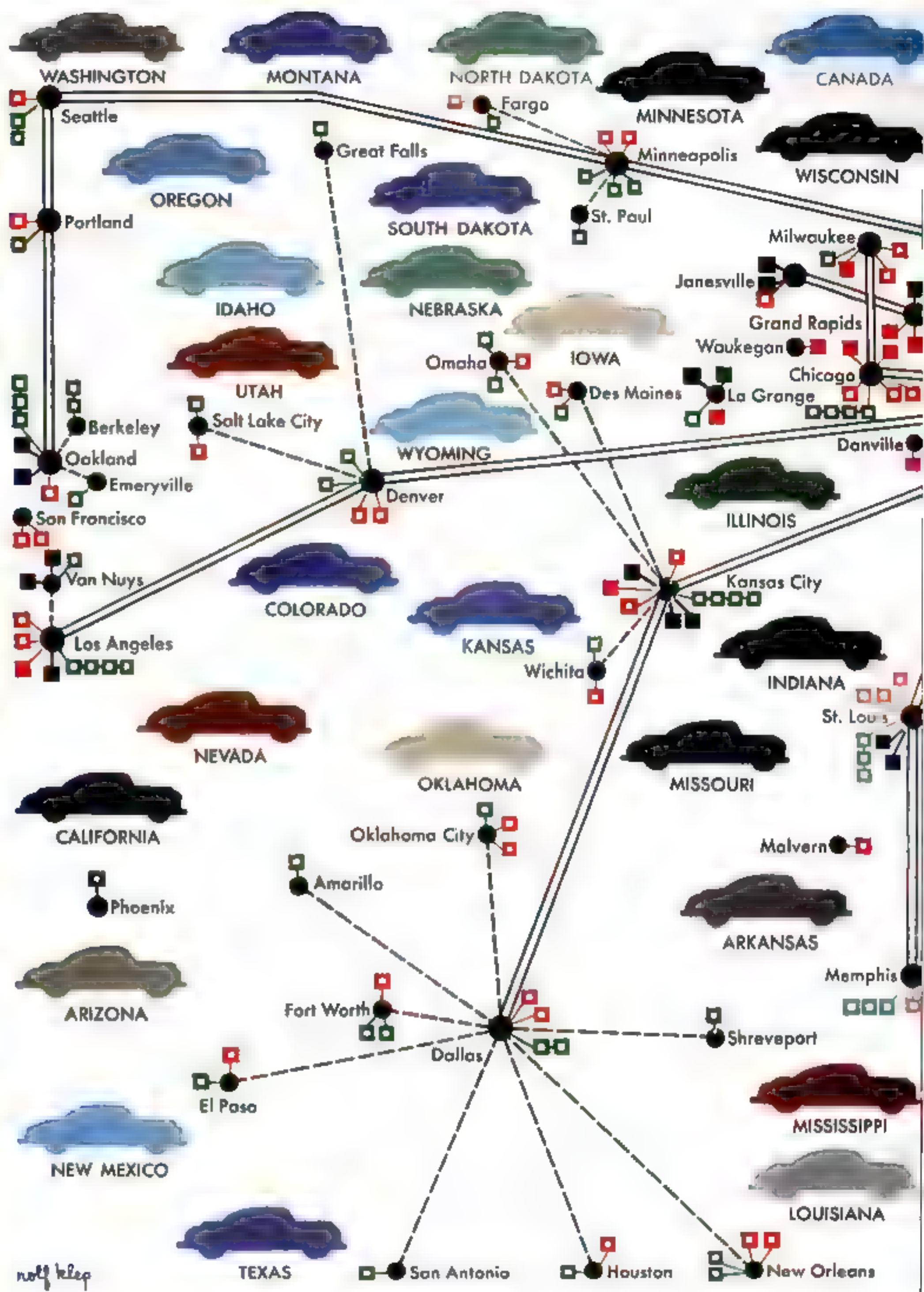


THE GM SYSTEM OF FLORICULTURE provides the corporation's 39 divisions with a rich soil of consumer dollars in which to grow, and rich nourishment in the form of legal, financial, research and engineering advice, and distribution and styling help. "Central office," here represented by a wing of the Detroit GM Building, also sets major policies and corporation labor and public relations patterns. Otherwise each division operates with all the competitive aggressiveness of an independent

company. This combination of paternalism and individualism has produced opulent blooms like (top row) Chevrolet, Buick, GMC Truck and Coach, Frigidaire, Electro-Motive; (second row) Pontiac, Cadillac (soon to make tanks), Oldsmobile, Delco Apphance, the diesel divisions, Allison (aircraft engines), the Overseas Operations. Aiding these are (bottom row) the vital accessory and Fisher Body divisions, insurance, retail and dealer financing divisions, Aeroproducts, four Canadian divisions,

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GENERAL MOTORS CONTINUED



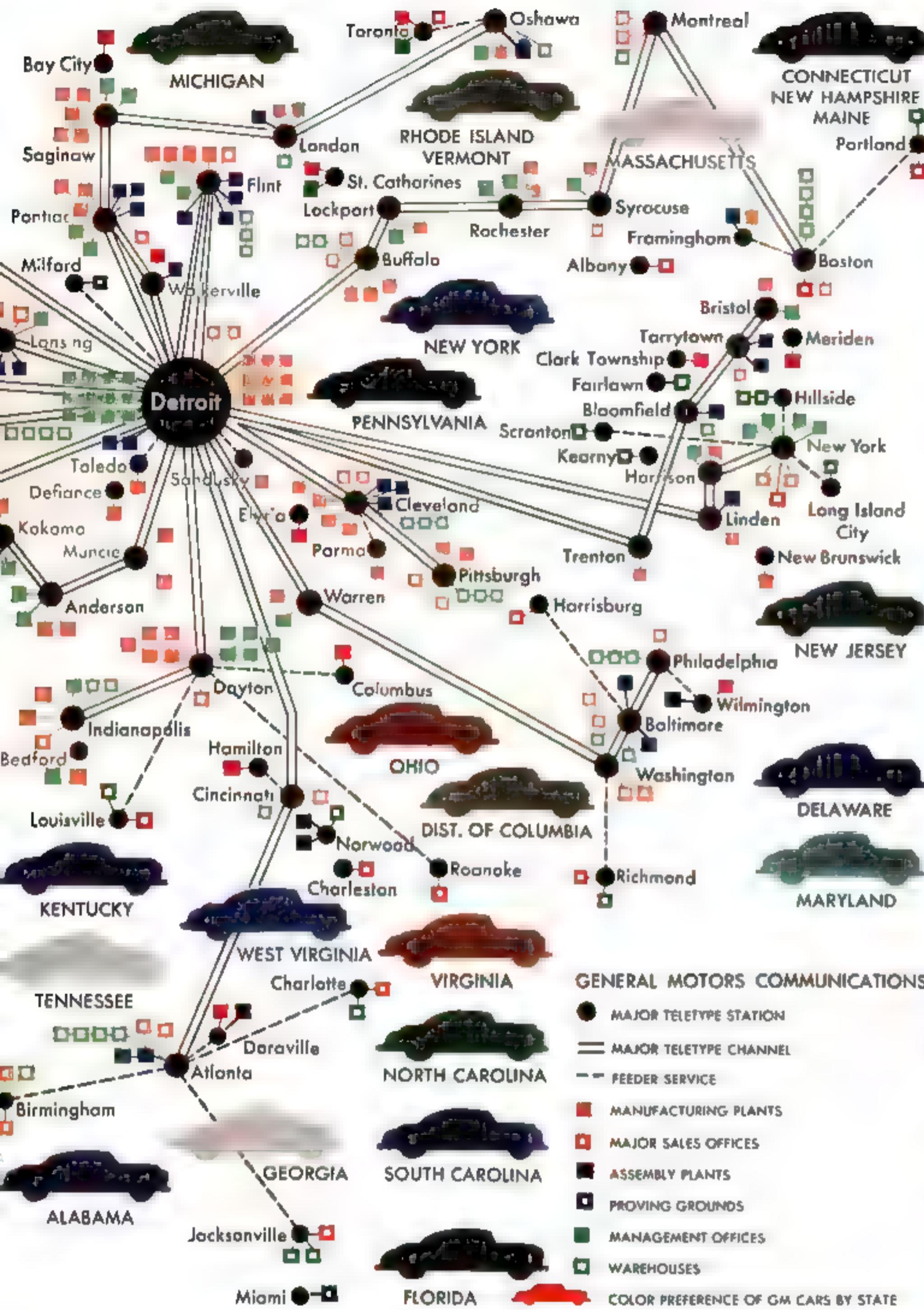
EMPIRE COVERS

General Motors' vast empire in the U.S. and Canada consists of 83 manufacturing plants, 43 assembly plants, 103 warehouses, 79 sales and 46 management offices, all charted above. Its international empire, 20 assembly and seven manufacturing plants in 23 countries, is shown in smaller maps at left and right. GM Overseas is making 176,000 cars and trucks a year, including the Opel in Germany, Vauxhall in England, Holden in Australia, and assembles 60,000 more from U.S.- and Canadian-made components.

Reasons for this enormous decentralization are varied and valid: it is more efficient to make parts in one plant especially set up to make them than to have production duplicated in all divisions. The Ternstedt Division, for example,

makes hardware for all GM cars. It is cheaper to ship these parts to far-flung plants for final assembly close to the point of sale than to assemble whole cars and then ship them to distant points. And it enormously broadens the labor supply on which GM must draw so heavily.

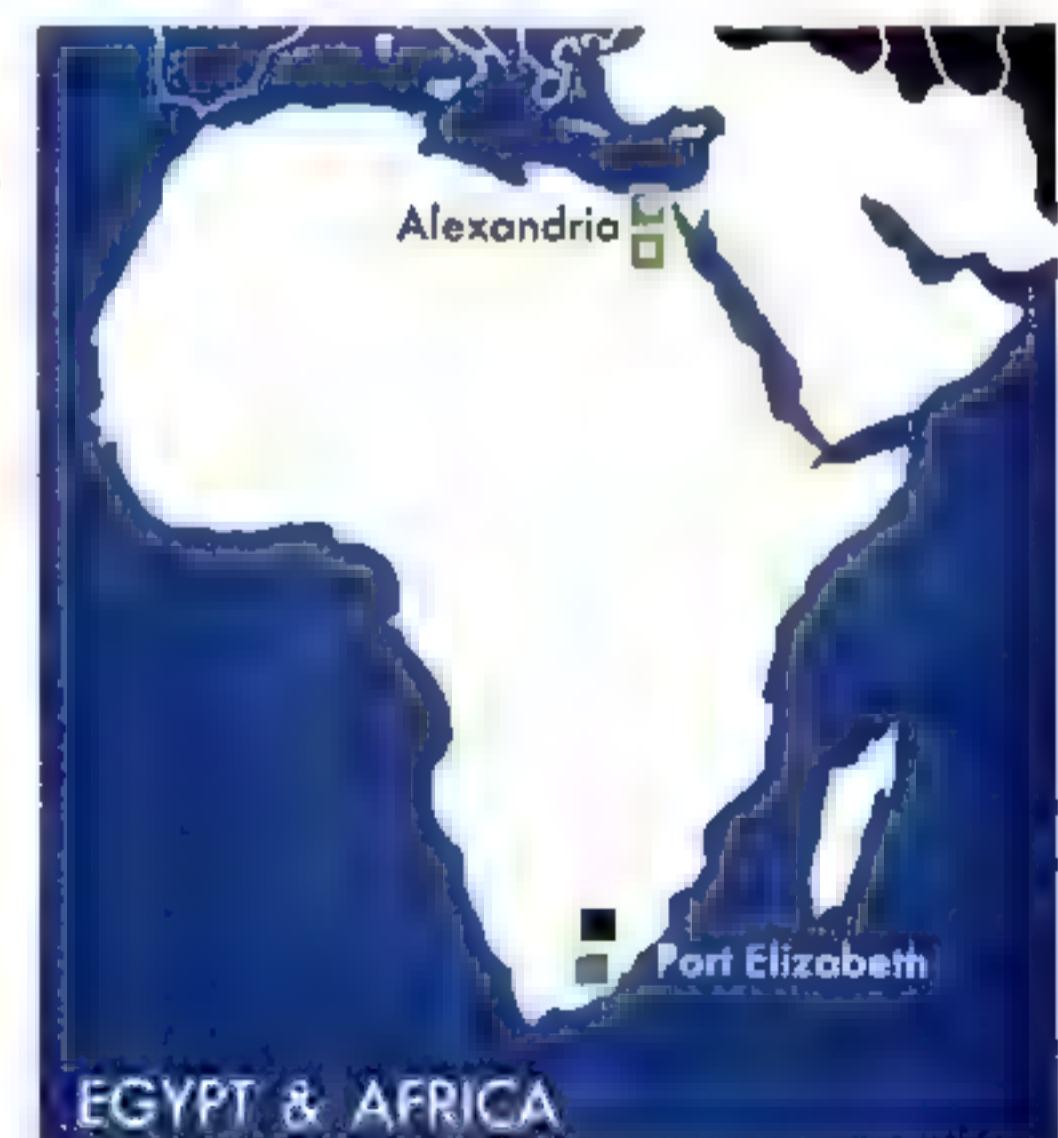
The empire is kept in instant communication with itself by a 75-words-a-minute Teletype and feeder-line system which carries 250,000 messages a month. One of the world's biggest Teletype networks, it clicks busily with car orders and notifications of the shipment of components. The skeletonized chart above may appear complicated, but it is as nothing to the complications confronted by the facilities it charts. Since the auto business is too big to



25 COUNTRIES

permit great stock-piling of inventories, all car parts are made and flow continually into a plant just in time to be assembled. When a Mr. Smith, in Media, Pa., decides on a new Chevrolet he orders a car that will be assembled in Baltimore. For assembly of that car at 9 a.m. Friday, its frame (together with the frames of other to-be-built-in-Baltimore Chevrolets) must leave a frame plant in Milwaukee Monday at 3 p.m. Its axle leaves Buffalo, its engine Flint and its transmission Cleveland the next day. On Wednesday its fenders are shipped from Philadelphia. Meanwhile other components are shipped from other places, all to arrive in Baltimore shortly before final assembly. When it is recalled that Mr. Smith, in ordering his car, can normally

choose from 14 body styles, 18 trim and color combinations and five special equipment options, the complexity of making and delivering cars to more than three million Mr. Smiths in a year begins to be appreciable. Additionally GM must keep track of state preferences in colors, as shown by the map, and the constant shifting in national tastes (currently toward lighter colors and "hard-top" convertibles). For years the automobile final assembly line which can assemble a car in two hours has been popularly regarded as the business's great miracle. The real miracle is the manufacturing and scheduling of all the car's parts to arrive at a certain place at a certain time. That accomplished, final assembly is a comparatively simple operation.





"SABRE" IS THE CAR OF THE 1960s

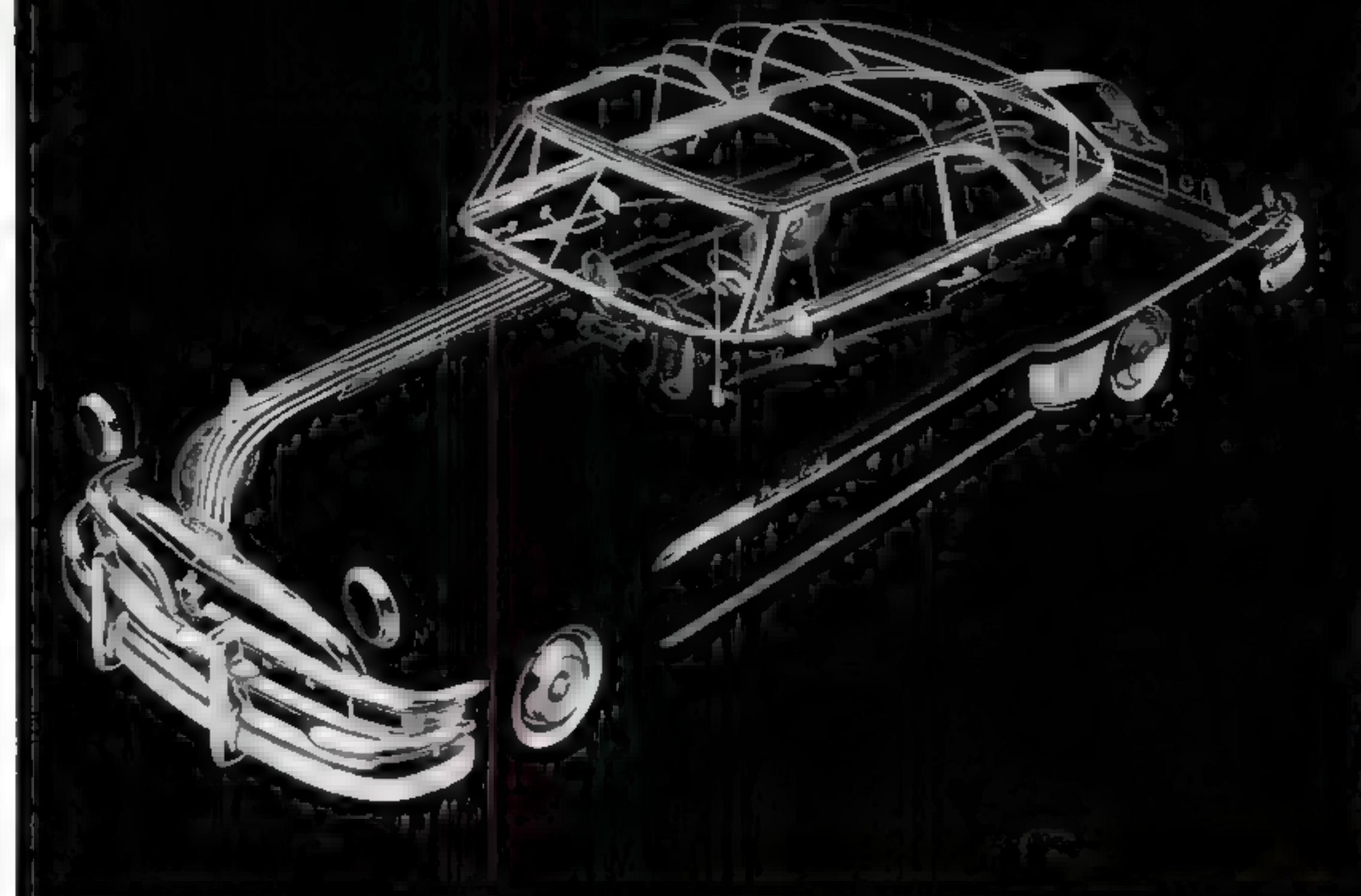
A dramatic instance of the assistance GM gives its divisions is the occasional building of an experimental car incorporating every future-looking device and styling trick Styling Chief Harley J. Earl (p. 64) can build into it. From it divisions can borrow as many ideas as they want. The last such car was built in 1938, a low, racy convertible which had GM's first automatic top, power-driven windows and cockpit-type seat. Today it still looks as sleekly modern as any current model. That is partly because it was the source of Cadillac's hood contour and Buick's vertical grille, and the back-swept fenders, concealed gas tank cap and off-center instrument panel of most GM cars.

Now Earl is completing Le Sabre (opposite), some of whose features will undoubtedly show up on GM cars five and 10 years from now. Le Sabre has a supercharged V-8 alcohol injection engine that develops upward of 300 hp (the biggest Cadillac motor develops 160) and may drive it at 150 mph speeds. Styled after the F-86 jet fighter Sabre, the car achieves its remarkable lowness (50 inches high with the top up) because it has a stationary drive shaft, and its torque converter transmission is in the rear. Since it is virtually all aluminum or magnesium alloy, even to its engine block, Le Sabre will weigh about 3,000 pounds, less than any standard-sized U.S. convertible of today.

At the touch of one of the dashboard's 31 controls and gauges, the front grille, which resembles a jet's air intake, swivels over and headlights emerge. In winter, when the seats might feel cold, another control turns on an electric device, similar to that used in Air Force flying suits, which warms the leather. The top is stored under the rear deck which opens automatically for it to raise, then closes. When a button on the door is pushed, a front section of the top flips back automatically to make getting in and out easier. If the car is parked with the top down and it begins to rain, an electronic mechanism set between the seats raises the top, again automatically. The high-flung rear fenders are actually fuel tanks, the left one containing gasoline, the right methyl alcohol. The dash instruments have red flashes that warn when fuels are low or the hand brake is set. Hydraulic jacks are built in, making wheel changing easy.

Even without civilian production curtailment, it will be years before Le Sabre's features appear in salesrooms. After they have proved themselves at GM's big proving grounds near Detroit and are accepted by division stylists, every tiny component and subassembly will have to be designed for production, cost-analyzed or tested and scheduled. As the pictures at right show, that is an enormously complex job.

LE SABRE is so low that a passenger in it is sitting only 37 1/2 inches above the roadway. To get a profile view of the car one must kneel down. Its lowness makes it seem excessively long. Actually Le Sabre's wheel base is the same as a Chevrolet's and its overall length, despite the elaborate back, is only 5 1/2 inches greater.



HOW MANY PIECES of chrome plated or stainless steel brightwork go into a car's decor is shown by this skeleton outline of the trim on a Pontiac Deluxe Catalina. It contains 182 pieces, only 11 of which are on accessories like radio and backing lights. They are supplied by six GM divisions, 20 of 200 suppliers.

HOW MANY PARTS it takes to make so ordinary a unit as a Buick speedometer is shown by the picture below; the total is 115, all but 21 made by GM's AC Spark Plug Division. Center part of the picture shows speedometer exploded into subassemblies. Top and bottom parts show the subassemblies re-expoded.





VICE PRESIDENT Hugh Dean, who coordinates scheduling of GM production and flow of materials, spends much time in a plane going from plant to plant. Now 62,

Dean began his career with the corporation as a laborer at Buick in 1915 and, like many another automan who grew up "in the shop," always wears his hat in his office.



ASSEMBLER Jane Buchanan earns \$57.60 a week air pressing bearing rings in Chevrolet-Bay City plant — and a fellow worker.



GM FOLKS

Alfred Sloan likes to say businesses tend to be pretty much alike—except for the quality of the people in them. To get and keep the best people it can, whether hog ringers (who staple car upholstery), shoe clerks (who fit safety shoes) or vice presidents (of which it has 35), GM stanchly insists on promotions from within for "GM Folks," as it calls its working forces. It pays hard-driving top executives, most of whom have been with the corporation for at least 25 years, six-figure salaries and, after years of jousting with the United Auto Workers union and fighting two epochal strikes, it gives its labor pensions, an annual raise and a cost-of-living allowance. As a result, since 1948 GM's labor supply has noticeably stabilized; work stoppages have averaged only 17 minutes per man per year.



NO. 2 MAN in GM hierarchy is generally conceded to be Harlow H. Curtice, executive vice president. As Buick chief he increased annual sales from 45,000 to 321,000.



RESEARCH CONSULTANT Charles F. Kettering (center), inventor of the self-starter and a retired GM vice president, offers advice on some testing equipment to its designer, T. P. Chase (left), and E. V. Rippingale of the Research Division.



TESTER Peter Grabiec, 45, runs dynamometer tests of engines at the Detroit Diesel plant where he has been for eight years. He has worked in factories since he was 18.



STYLING BOSS Vice President Harley Earl inspects a mock-up of a suggested steering wheel for Le Sabre (p. 66). The actual wheel is a steel alloy, coated with plastic for hand-warmth and chrome-plated for appearance. Earl, 57, comes from

a family of coach builders, began with GM as a consultant for Cadillac in 1927, has headed the Styling Section as a vice president since 1937. He is accustomed to crowds whenever he parks because he often drives an experimental automobile.



DESIGN ENGINEER Arnold Deeley-Jones, 59, is one of 60 such engineers employed in the corporate Styling Section, where the body styles of all GM cars

are developed by teams of designers. He supervises the building up, in wood or in plaster, of full-size models of new and experimental designs for automobiles.



LADY WELDER Elizabeth Liwo, 36, who works on bumper guards, came to Cadillac in 1943, stayed on after war. Cadillac employs 500 women workers.



INSPECTOR Albert Longfellow, 64, uses Johannson blocks to check a set of cutters for a lathe. One out of every 10 workers at Cadillac is an inspector.



TOOLMAKER Carl Goerke, 62, who will be eligible for retirement on pension in three years, readies his lathe to cut a bushing. He earns about \$5,000 a year.

GENERAL MOTORS CONTINUED



TANK TRANSMISSIONS, each weighing 3,000 pounds, are readied for shipping in an Allison plant in Indianapolis. They are painted white to reveal any loss of oil during runs on the test stand and during actual use. They are as carefully

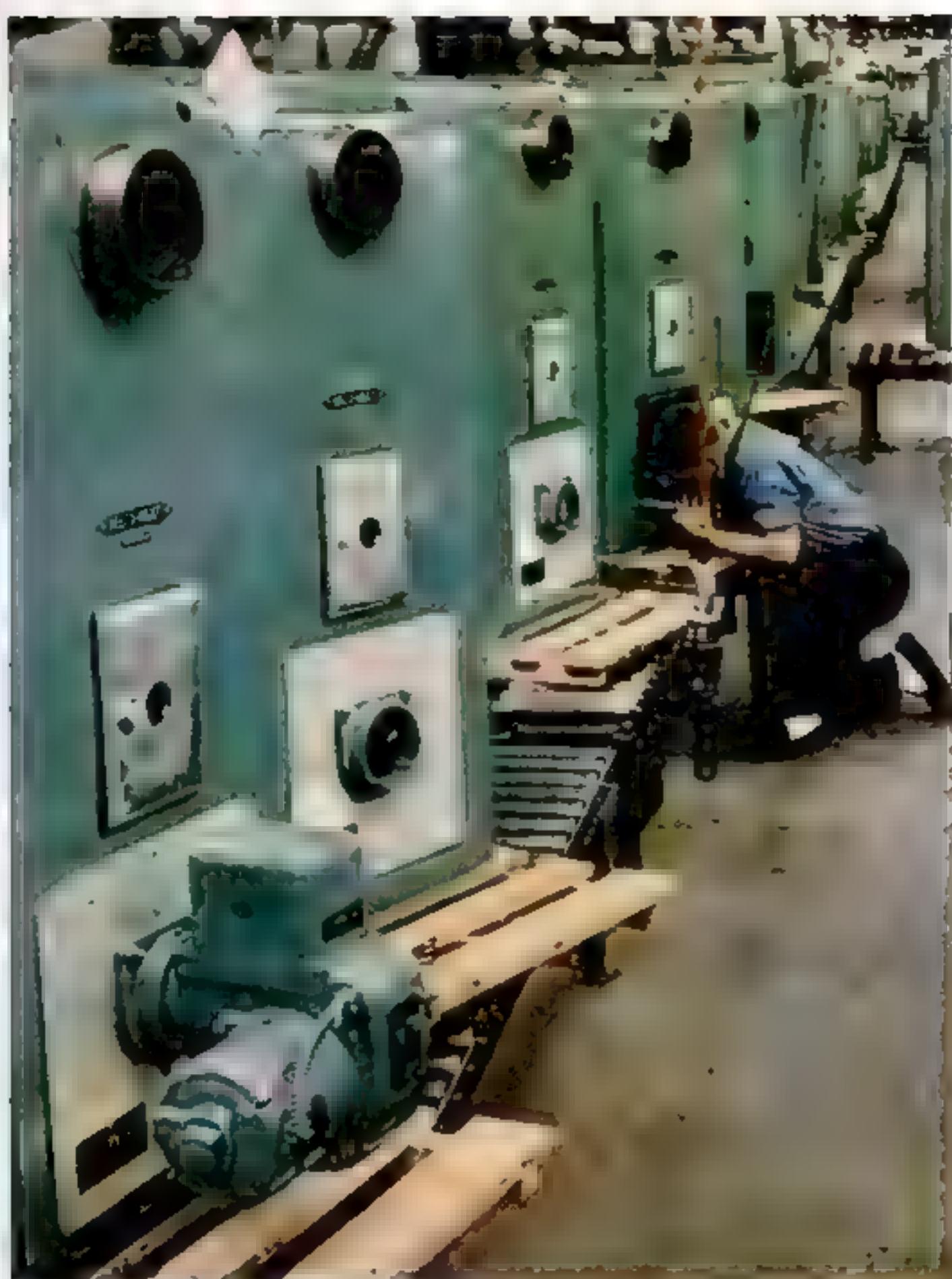
machined as aircraft engines and their design enables driver to go forward, back, turn and change gears by manipulating only one control. Allison is now tooling to make transmissions for the new light tank Cadillac will make in Cleveland



WAR WORK IS BEGUN

Some 15% of GM's massive sales results from its nonautomotive operations. Over the years it has entered such diverse fields as bicycle coaster brakes, magnetic wire and railroad journal boxes, less from a desire to expand than because of research discoveries. Auto-making requires knowledge of at least 250 major materials and of scores of manufacturing methods, and in their constant experiments GM research men have learned techniques that can be effectively applied in nonautomotive fields. Ethyl gasoline, for example, resulted from studies of automotive combustion. The oilless bearing derived from experiments with a subsequently abandoned air-cooled engine. The corporation's non-automotive divisions include Electro-Motive Division, world's biggest maker of diesel locomotives, whose units run on 151 North American railroads, Frigidaire (opposite), which last year built its 13-millionth refrigerator, Aero-products (p. 68) and Allison, whose jets have powered most of the fighter planes in the Korean war and is currently shoulder deep in war work

J-35 TURBO-JET ENGINE, Allison-built, is installed in a Republic F-84 fighter. Allison Division produced 70,000 airplane motors for World War II.



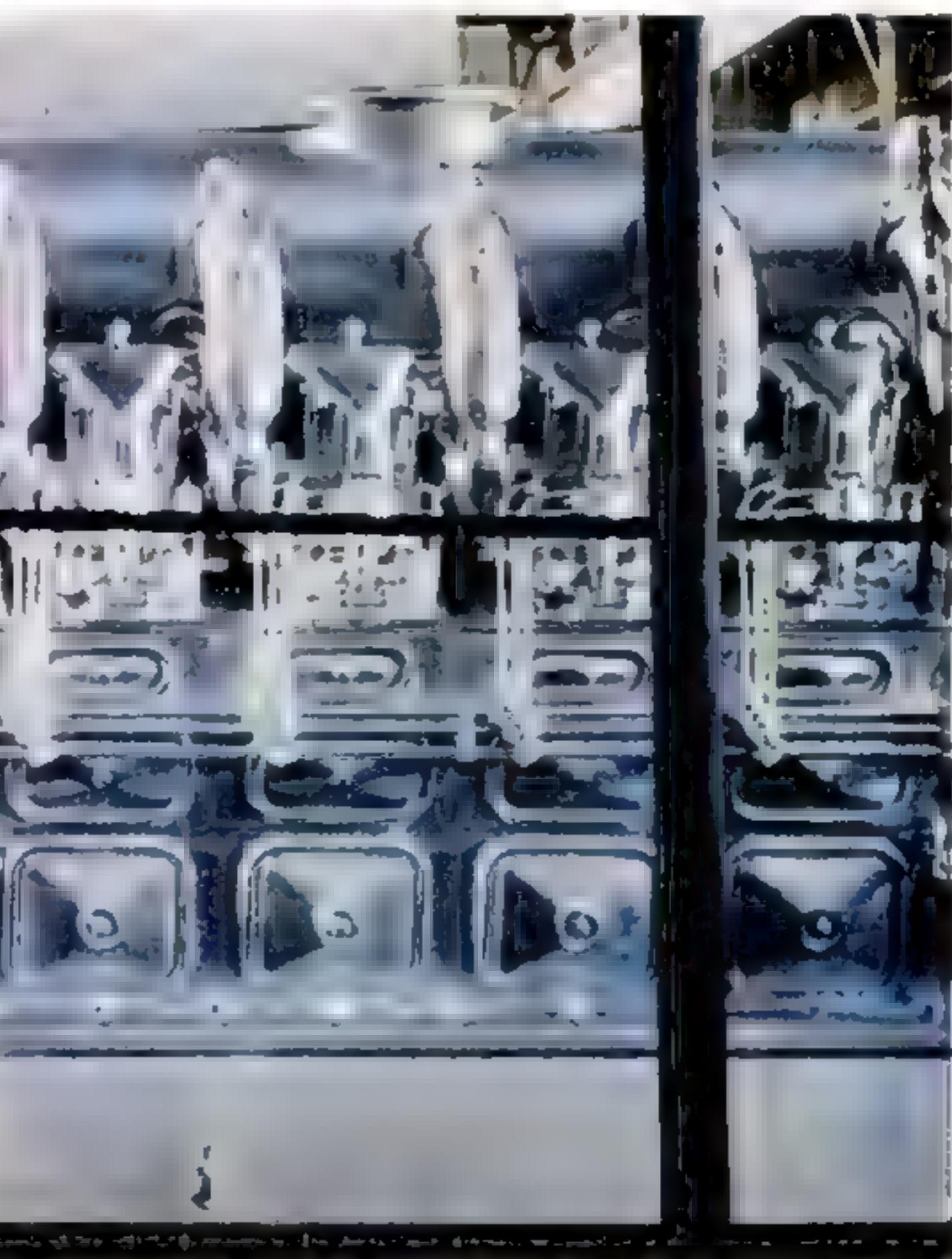
AUTOMATIC HEATING EQUIPMENT is made by Delco Appliance Division in Rochester. This is the oil-fired furnace assembly line; a workman is riveting a burner mounting panel in place. Division also makes boilers, water pumps



ELECTRIC REFRIGERATORS, ranges and other appliances are made by Frigidaire Division in Dayton, Ohio. Here, as refrigerator freezing units move through a 17 foot water tank, inspectors look for air bubbles which betray leaks.



DIESEL ENGINES for marine use are made by Cleveland Diesel Engine, one of GM's four diesel divisions. This one, on test, is a 12-cylinder, two-cycle engine of 2000 hp. Cleveland Diesel briefly makes engines for small marine patrol craft,



mine sweepers and LST's—18 types of naval craft in all—and for main propulsion and auxiliary service on all types of ships. Originally the Winton engine company, maker of the first American-designed diesel, it was absorbed by GM in 1936.



AIRCRAFT PROPELLERS are made almost entirely for the Air Force and the Navy by the Aeroproducts Division in Dayton, which has built huge, Swiss-cheeselike walls of special concrete in test cells to control airflow. The propeller

in front of the cell above is a feathering and reversing, dual rotation turbopropeller, which Aeroproducts Division was first to develop. It is for a Navy P3Y 1 Convair patrol plane. Aeroproducts is currently working on supersonic propellers.

Here's how to get top-notch performance from your Christmas gift shaver

Tests by thousands of men have proved that Lectric Shave—the amazing *before-shave* beard conditioner—gives closer, faster, more comfortable shaves with every type of electric shaver.

Try it yourself with the shaver you received for Christmas. Just apply cool, refreshing Lectric Shave to your face—then plug in your razor and shave. Note how Lectric Shave improves your razor's performance—speeds up shaving, cuts down drag and discomfort.

You get top-notch razor performance because Lectric Shave prepares your face for shaving with a remarkable 3-way "setting up" action:

1. It evaporates sticky, razor-clogging perspiration.
2. It lubricates the skin for faster, more comfortable shaving.
3. It tautens your skin—"brings out" your beard for closer, better-looking shaves.

And Lectric Shave is good for your *shaver*, too! It lubricates the shaver's cutting head for faster, easier action—longer shaver life.

Try Lectric Shave tomorrow. It's available at your nearest drugstore or toilet-goods counter—and it costs less than a penny a shave! Only 49 cents, plus tax, for the 3-oz. bottle—enough for 80 shaves.

Read what these men have to say about this amazing preparation!



"I recommend it to anyone who uses an electric shaver," writes H. Lindquist, Kirksville, Mo. "I have used several kinds of shaving aids, and Lectric Shave is by far the best."



"Gave me wonderful results," says L. W. Meyers, Philadelphia, Pa. "With the first application of Lectric Shave, I got a cleaner, faster, smoother shave and my face felt refreshed."



"It fills a long-felt need," says W. H. Varley, Newton Centre, Mass. "Lectric Shave makes it possible to get fast, close shaves. There's no irritation, either—even in hot weather."



"Showed me how really convenient electric shaving can be," reports C. Little, New Orleans, La. "Lectric Shave lets me shave in less time, get a closer shave in the bargain!"



Happy Shaving! Thousands of Lectric Shave users are already getting closer, faster, more comfortable shaves than they ever thought possible. That's why sales of this remarkable lotion have continued to climb year after year. Try Lectric Shave yourself the next time you shave. Just spread it on—rub it in—and get set for a *new high* in shaver performance!



Free!

Try Lectric Shave at our expense

Use Lectric Shave with any make of shaver. It's available at all drugstores and toilet-goods counters. Or, if you prefer, we'll send you a generous sample bottle—enough for a full month of shaving—absolutely free. Send your name and address to: The J. B. Williams Company, Department LN-1, Glastonbury, Connecticut. Don't delay—send name and address today!

9 out of 10 men who try Lectric Shave continue to use it!



At White Bear Lake, fishermen compete in the annual fishing contest of the St. Paul Winter Carnival. The year

after LIFE story on the event, contest attendance trebled, its publicity chairman says. This is one indication of

the tremendous effect LIFE has on the people living in the Twin Cities area, of whom half are LIFE readers.*

What happens when **LIFE** hits the Twin Cities?



MAYOR Edward K. Delaney of St. Paul says: "LIFE is a source of valuable and interesting information which is presented in an excellent manner. LIFE has become an authentic part of the life of our city."

MAYOR Eric G. Hoyer of Minneapolis says: "Factual, lucid, terse, LIFE's articles and picture stories are competently presented, while the attitude they reflect is of profound moral and political intent."

As a LIFE reader, you will recall reading in these pages from time to time the story of LIFE in many of America's cities.

Here is the story of LIFE in America's Twin Cities, Minneapolis and St. Paul. In words and pictures, you see that LIFE's impact on the citizens, the civic, cultural and community affairs of these two cities is not only penetrating but personal ...

LIFE's effect starts careers . . . increases attendance at basketball games . . . builds up support for fighting infantile paralysis . . . impresses the thoughts and actions of municipal and commercial leaders.

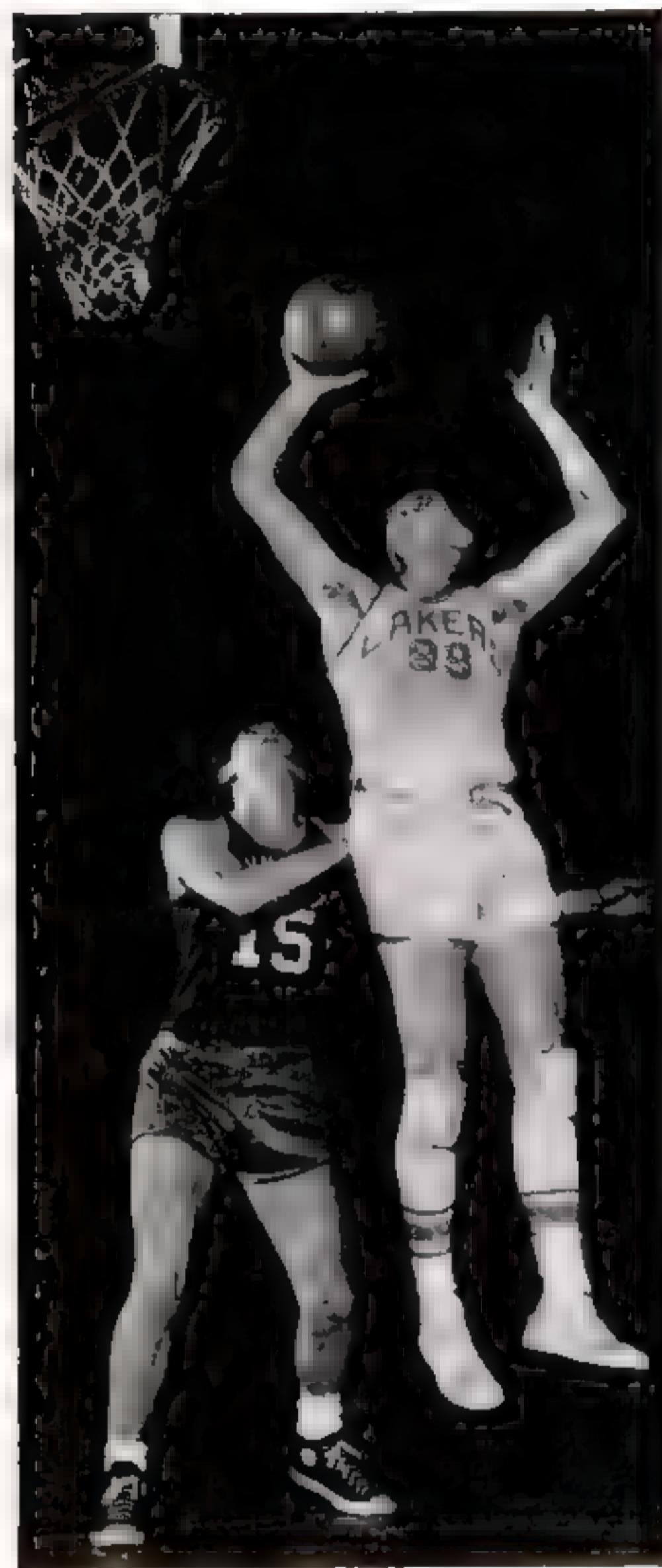
Everywhere LIFE goes, in every city and hamlet across the nation, the story is similar. And there are good reasons why this is so.

A recent and highly significant research study* found that in the course of 13 issues over half the nation reads LIFE. Equally important, LIFE's most regular readers are people with college educations and in middle and upper economic groups.*

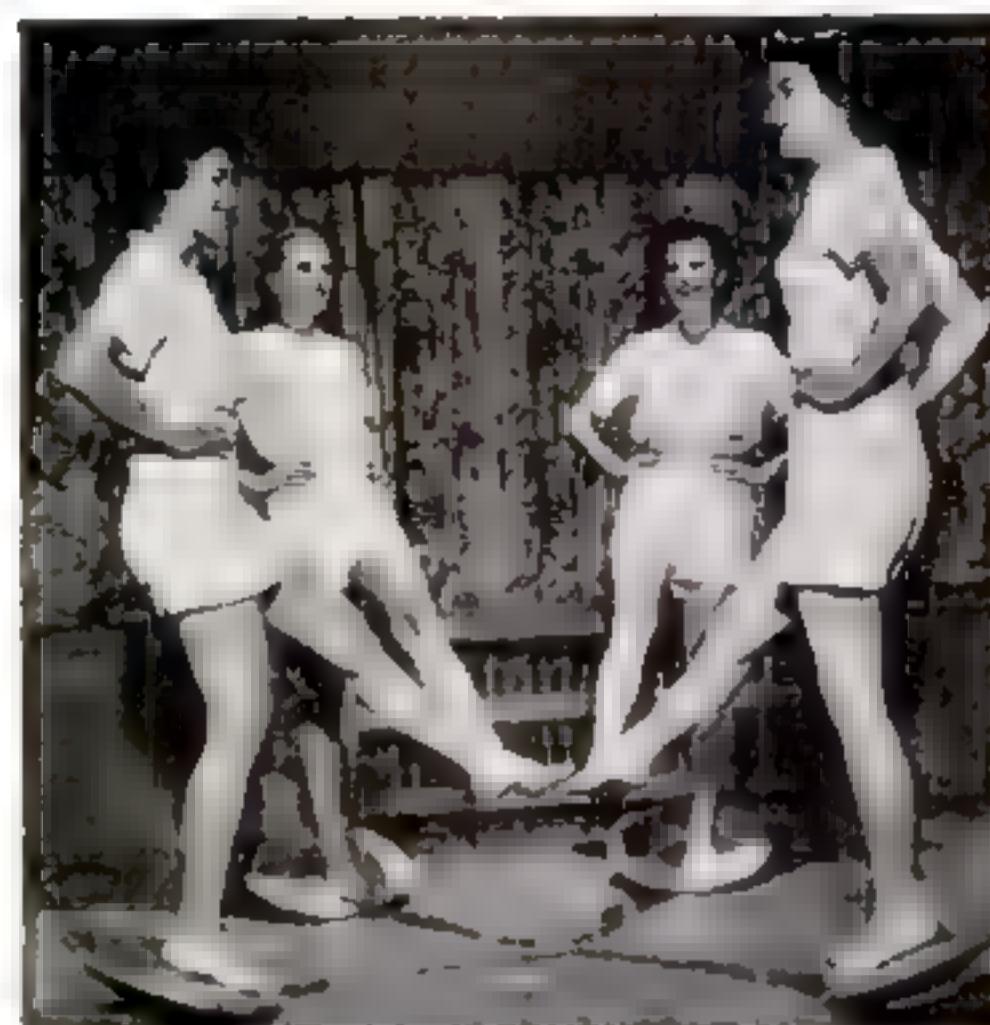
Indeed LIFE has become part of the commerce and culture, the entertainment and enlightenment of the American people . . . wherever they live.

*From the new Accumulative Audience Study by Alfred Politz Research, Inc. which reveals how LIFE's audience grows from a single-issue audience of 23,950,000 to a 13-issue audience of 62,600,000 different people. These figures quoted here refer to the number of people who read one or more of 13 issues of LIFE.

So many different people feel LIFE's impact...



PLAYER George Mikan scores for the Minneapolis Lakers, basketball team reported in LIFE. Manager Max Winter says: "The LIFE story increased the following of all our games." In LIFE's audience are 31,050,000 males.*



CAREER girls, above, from Michigan, Wisconsin, Idaho, New Jersey, entered Minneapolis school for airline hostesses after reading about school in LIFE. Over 13 million young adults aged 20 to 29 are among LIFE readers.*



BANKER Joseph Ringland, Pres. of Northwestern National Bank of Minneapolis: "LIFE's accuracy and completeness make it a world affairs trade journal for most businesses." 70% of U.S. business executives read LIFE.*



ANNOUNCER of radio and television news for Station KSTP, Bill Ingram says: "I consider LIFE my best magazine news source. Every Thursday, I televise LIFE's vivid and exciting pictures on my 10 o'clock news report."



RETAILER Glenn R. Grise, V.P. of 746 Red Owl Stores, pins corsage on MCM star Arlene Dahl, one of LIFE's 31,550,000 feminine readers.* Chain's sales jumped 10% during promotion of LIFE-advertised food products.



GOVERNOR Luther Youngdahl of Minnesota says: "We in Minnesota are pleased to have LIFE tell the story of the opportunities for rich living in our Twin Cities." Over half of the people in LIFE's audience are home owners.*



SISTER Elizabeth Kenny, head of the polio-fighting foundation, says: "We shall never forget the wonderful response LIFE's story created for the Institute. The contributions were strong in building up our main support."



PRESIDENT Croil Hunter of Northwest Airlines says: "On our coast-to-coast flights, LIFE is reported preferred reading with passengers." Two-thirds of Americans in middle and upper economic groups are LIFE readers.*



MANUFACTURER Charles Percy, 31, president of Bell & Howell, makers of camera equipment, is one of the youngest men in the country to head a multi-million-dollar industry. In 1937, working during a summer vacation from the University of Chicago, he caught the eye of Bell & Howell's president, who persuaded him to come back to work weekends and subsequent vacations. After his graduation in 1940 Percy was put in charge of government contracts. When he came back from the war in 1945 he was made secretary of the company. When the company's president died in 1949 Percy took his place. He has three children.



LABOR LEADER Carl Stellato, 34, is president of U.A.W.'s Local 600 at Ford's River Rouge plant, the biggest local (64,000 members) in the country. If he can consolidate his command by throwing out a hard core of Communists he will become one of the strongest men in the C.I.O. A machine setter, Stellato rose through union ranks. He works seven days a week.



PRODUCTION CHIEF Donald Burnham, 36, is boss of General Motors' Oldsmobile assembly lines. His innovations aided the modernization program at Oldsmobile, which recently opened the U.S.'s most streamlined assembly plant and boosted the rate of engine production from 30 to 85 an hour. Burnham has a B.S. degree from Purdue University, is father of five.

HOPE FOR THE FUTURE

U.S. has reserve of up-and-coming brains and talent

The young people on these pages represent a current asset on the national balance sheet. But, far more, they represent important capital for the future. They are all talented Americans still in their 20s and 30s who have made important contributions to the fields in which they work. The names of a few of them have spread beyond their immediate fields—Percy, the boy-wonder businessman, Stellato, a potential Reuther in labor, Murphy, whose Kansas medical plan may be a model for many states. But most are still unknown, waiting for an older generation to move over and make place for them. *LIFE* chose these 14 not as all the best young talent in the U.S. but as a cross section, covering many aspects of the nation's work.



AERONAUTICAL ENGINEER George S. Schairer, 37, is one of Boeing's top airplane designers and the originator of the sweep-back wing on the jet-powered B-47 bomber—the model shown above. He is also responsible for the oversized vertical tail fin on the B-17, B-29 and B-50, which has become a Boeing trademark. Schairer works with a slide rule and paper, leaving his corps of 160 project engineers to translate his ideas into reality. At the moment he is masterminding the secret research on the turbine-driven heavy bomber B-52 and a commercial jet transport. A graduate of Swarthmore and M.I.T., he is married, has four children.



POLITICIAN John C. White, 26, is Texas' newly elected commissioner of agriculture. A graduate of Texas Tech, he became a teacher of agriculture at Odell College, decided to run for commissioner after some state-certified seed which he told his students to buy turned out to be bad. After a vigorous campaign he unseated the 69-year-old incumbent, who had held the post for 20 years. Texas politicians think a governorship may be in store for the red-haired 215-pounder.



ECONOMIST Paul A. Samuelson, 35, is professor of economics at M.I.T., uses mathematics in analyzing economic theories. His two books—one for experts, one for students—have already become classics. During the war he worked as a technical adviser in M.I.T.'s top-secret radiation lab. He has a rare ability to concentrate, finds it no trouble to work out abstruse economic notions while his two daughters, aged 3 and 4, romp around the room and play under his desk.



MEDICAL ORGANIZER Franklin D. Murphy, 34, dean of Kansas University's Medical School, authored the Kansas Plan, which helps answer the need for small-town doctors. He persuaded communities to attract doctors by setting up modern medical facilities. Next he wangled \$3.8 million from the state to expand the school to keep rural doctors in touch with latest medical news. His latest idea: give social science courses. "Social training," says he, "will beat socialism."



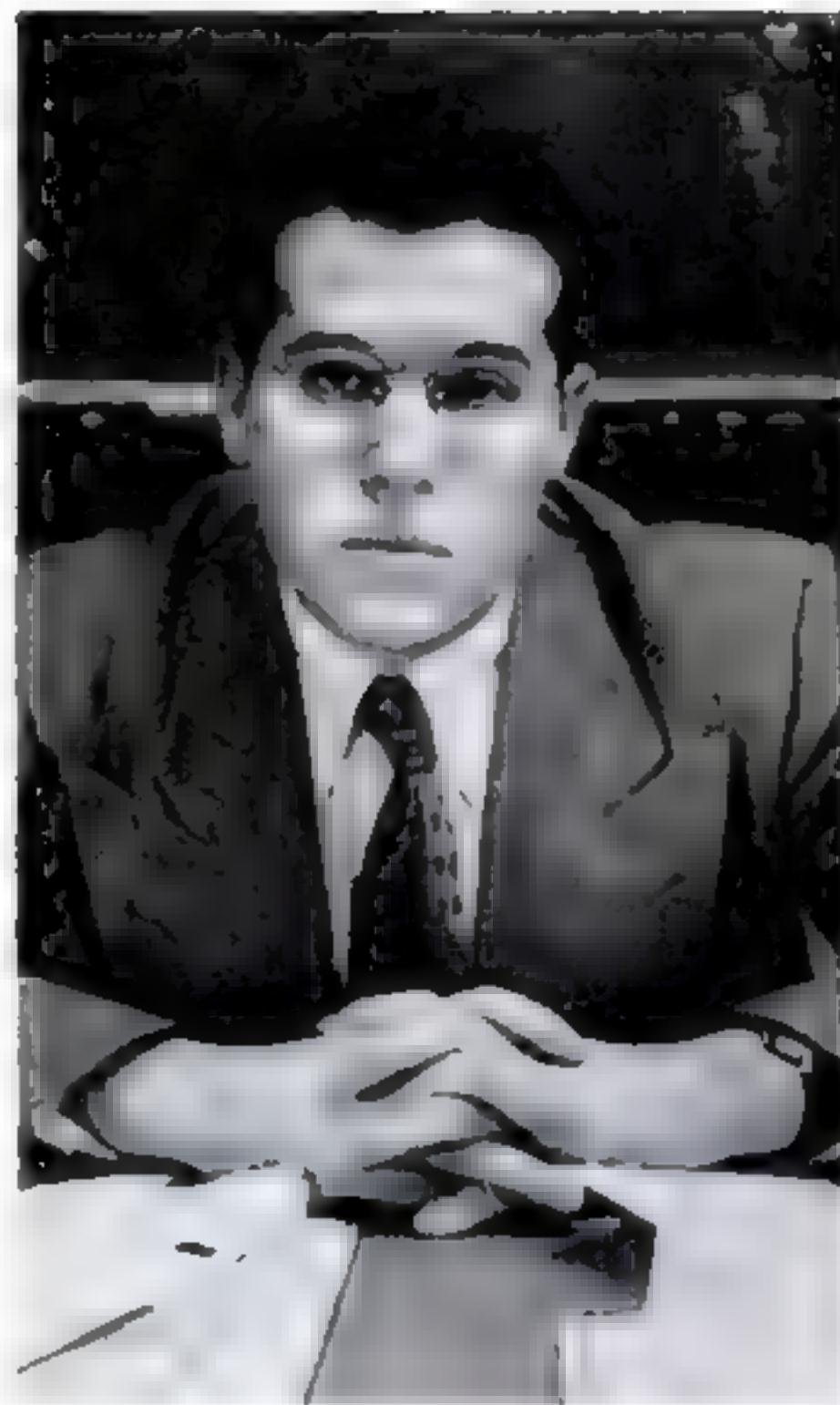
CHEMICAL ENGINEER Robert Roy White, 34, has been a full professor at the University of Michigan for two years. On the side he acts as consulting engineer for Dow Chemical Company and the Columbia Gas System (for which he is helping to develop synthetic fuels against the time when the national supplies of natural gas run low). Chubly Engineer White seldom rests his energetic brain. His favorite relaxation is to play several games of chess at once while blindfolded.



MILITARY MAN Colonel Henry Byroade, 37, is on loan from the Army to the State Department as Director of the Bureau of German Affairs. A West Pointer, Byroade showed organizing genius when, serving in China with the 14th Air Force, he supervised the building of B-29 airfields by Chinese laborers. In 1945 he became Marshall's right-hand man in China. In 1946 he was promoted temporarily to brigadier general and was at 32 one of the youngest officers to reach star rank since 23-year-old General Custer.



DIPLOMAT Dorothy Fosdick, 37, is the only woman among 11 men on the State Department's Policy Planning Board. Daughter of Dr. Harry Emerson Fosdick, pastor emeritus of New York's Riverside Church, Miss Fosdick went to Smith, won her Ph.D. at 25 from Columbia. Her thesis, *What is Liberty?*, was published and praised by critics. Before joining State Department in 1942 as an expert on international organization, she taught government at Smith for five years and is now Smith's youngest trustee.



PHYSICIST Julian Schwinger, 32, Harvard professor, may prove to be the nearest thing to an Einstein the U.S. has produced. A New Yorker, Schwinger became interested in science through reading scientific pulp magazines. At 17 he won a Columbia fellowship for his criticism of a new Einstein paper and during the war worked on radar development at M.I.T. His greatest triumph came in 1948 when his presentation of a modified atom theory brought loud applause from usually undemonstrative physicists.



FARMER Julius Black, 34, with his father, runs a booming hybrid corn business in Ames, Iowa. He began his business while a student of agriculture at Iowa State College, planting 17 acres of hybrid corn his first year. Today he owns 1,000 acres, has 80 dealers who sell "Black's Hybrid" all over the state of Iowa. Besides growing corn, Black raises 800 hogs a year and operates a small dairy with 16 cows, grossing over \$200,000 a year. He sets aside 39 acres of his farm for research in new varieties of hybrid corn.



LAWYER Elliot Richardson, 30, left Harvard Law School to join the Army, was rejected because of weak eyes but became a stretcher-bearer with the 4th Infantry Division. Back at law school, Richardson was elected editor of the *Law Review*, and after graduation became law clerk first to Judge Learned Hand, then to U.S. Supreme Court Justice Felix Frankfurter, jobs open only to the cream of the legal crop. Unmarried, he is a bright young light of the venerable Boston firm of Ropes, Gray, Best, Coolidge & Rugg.



MATHEMATICIAN Claude Shannon, 34, is one of the key scientists on Bell Telephone Laboratories' research staff. As a 21-year-old graduate student at M.I.T. he won an award for the first successful mathematical analysis of relay circuits in electronic computing machines. During the war he joined Bell, developed codes and ciphers for the armed forces. Since then he has been working on mathematical theories of communication with the help of his wife, a mathematician who operates a computing machine for Bell.

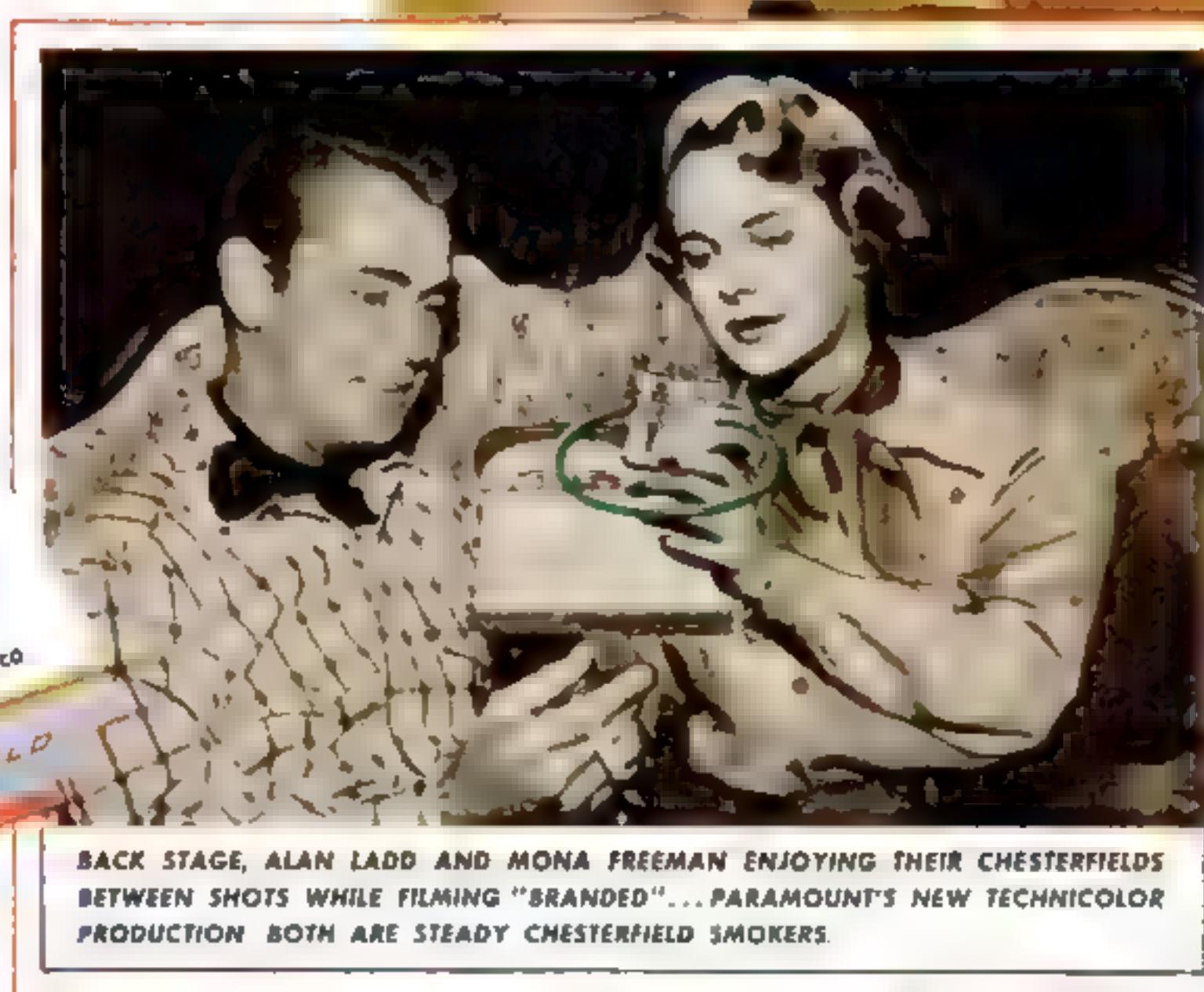
"Make this Mildness test*
and you'll smoke Chesterfields
like I do" says -

Mona Freeman

* Open ém · Smell ém · Smoke ém
Compare Chesterfield with any other cigarette

Make your next pack Chesterfield...open
it up...smell that milder tobacco aroma—
no other cigarette has it. Smoke Chesterfield
and prove what every tobacco man knows

...tobaccos that **SMELL MILDERS**
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BACK STAGE, ALAN LADD AND MONA FREEMAN ENJOYING THEIR CHESTERFIELDS
BETWEEN SHOTS WHILE FILMING "BRANDED" . . . PARAMOUNT'S NEW TECHNICOLOR
PRODUCTION BOTH ARE STEADY CHESTERFIELD SMOKERS.

MONA FREEMAN
co-starring with Alan Ladd
in "BRANDED"
A Paramount Production
Color by Technicolor

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H. E. Mellenthin knew character when he saw it!

He Discovered the "Greatest Show-Dog of All Time"

When Mr. Mellenthin went to his kennel one morning to inspect a litter of Cocker Spaniels, he got the thrill that comes once-in-a-lifetime. In one of the puppies he instantly recognized the "character" that

makes a champion and knew the puppy was too valuable to sell. That dog was *My Own Brucie*, later called the "greatest bench show champion of all time!" The puppy shown is Brucie's grandson.



If you know character...

you'll instantly recognize the superiority of **HUNTER**, long famous as America's luxury blend. Its flavor is so distinctive that no one has been able to copy it in over 90 years.



Hunter-Wilson Distilling Co., Inc., Louisville, Ky. Blended Whiskey 86.8 Proof. 65% grain neutral spirits.



COLORFUL COOKERY

New stove using infrared light gives kitchen a theatrical look

This year will introduce a scientifically new principle of cooking and a theatrically new look to the American kitchen. The agent of these changes is infrared light from a new kind of lamp manufactured by Sylvania Electric Products and used as the heating unit in electric ranges. The unit, which will equip new stoves rather than fit into old, consists of an especially tough infrared bulb mounted beneath a translucent

stove lid. Instead of conducting heat to a pot, as electric coils do, the bulb radiates heat to the pot through the lid, which is colored red because other colors block most infrared rays. Unlike coils, which warm gradually, lamps radiate full blast at the flick of a switch, an advantage in heating small quantities of food. The bulb's smooth surface is easy to clean and so tough that not even ice water will crack it when it is hot.

Ballantine Ale
begins where
other brews
leave off...
in flavor...
in satisfaction!

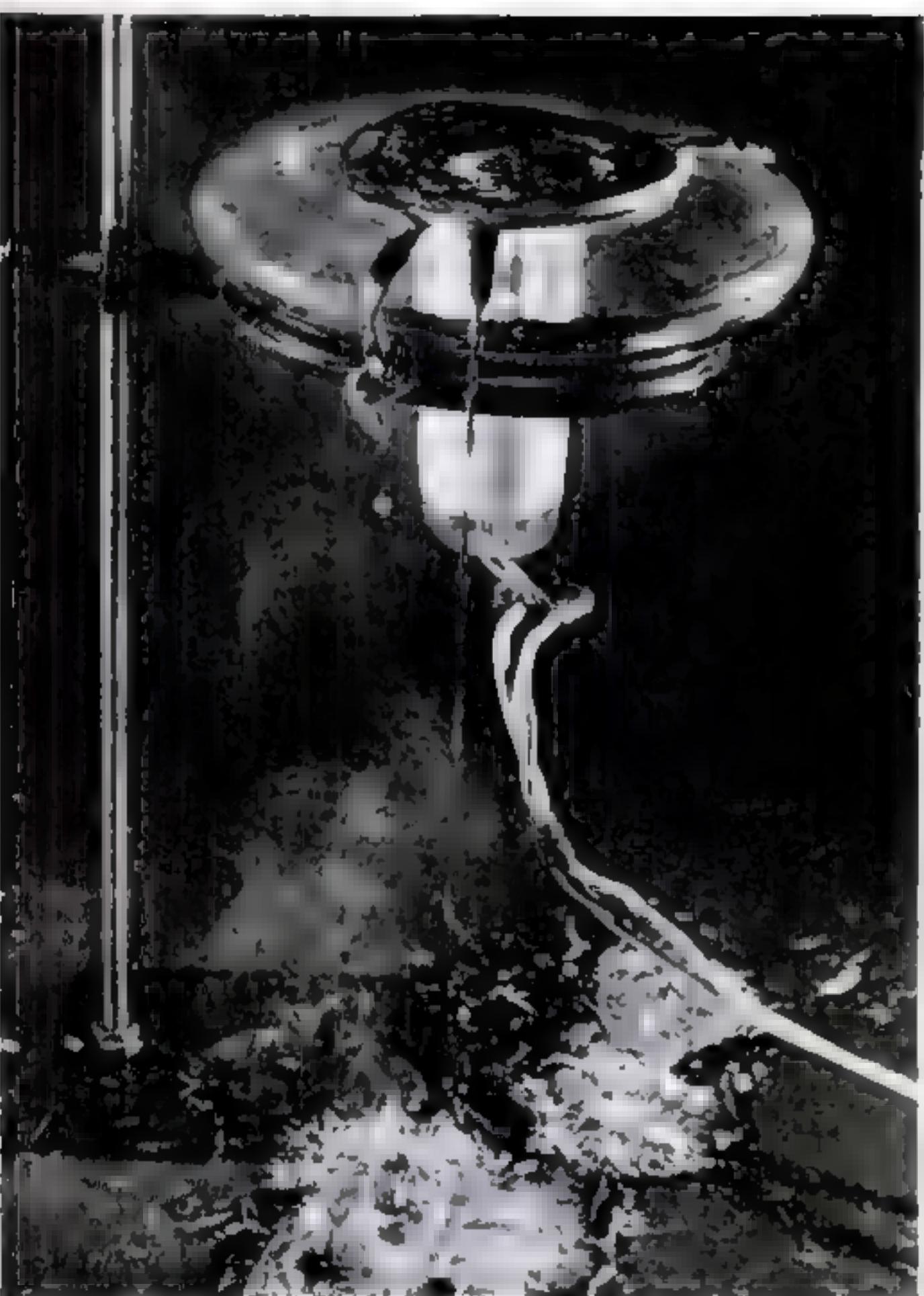


The **LIGHT** ale
that's strong on flavor

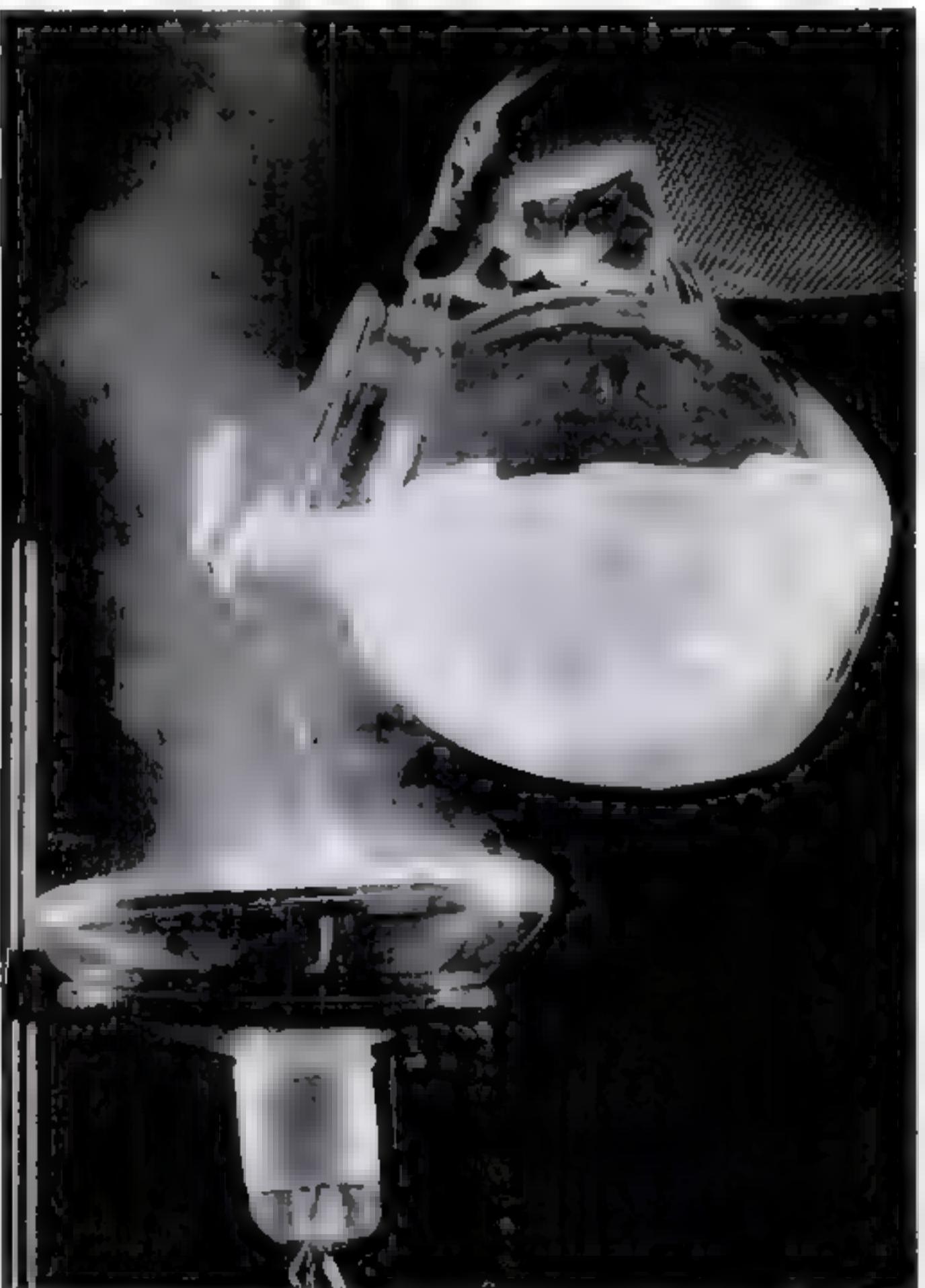


Try it for a change...and you'll never change back!

AMERICA'S LARGEST SELLING ALE
P. Ballantine & Sons, Newark, N. J.



LEAD MELTS when placed on stove's infrared lamp mounted in test stand. Lead's melting point is 557°. Lamp can operate at 1,400° before glass melts.



ICE WATER STEAMS when poured over bulb operating at full blast. But glass does not crack. Toughness results from high silicon content in the glass.

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GLYCERINE TABLETS
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HONEY PINE TEN CENTS
HONEY

**GET THIS SAFE,
SOOTHING *Relief***

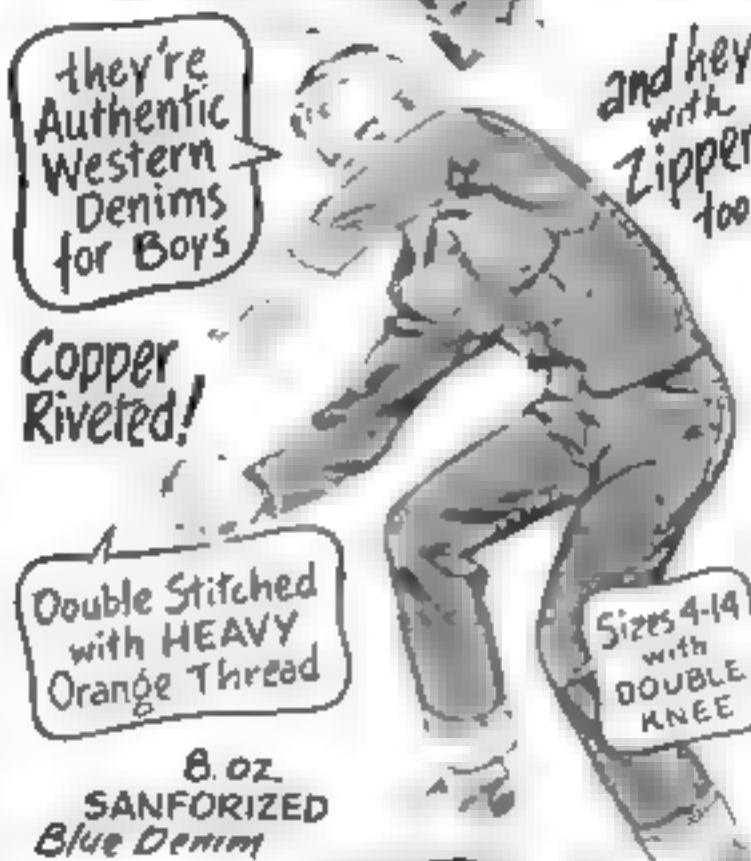
Why use strong drugs that may cause serious after-effects? If your dry, cough-torn throat is due to a cold, Pine Bros. Glycerine Tablets will relieve it safely and pleasantly. Every ingredient is time-tested and medically-approved. Use freely for coughs and other throat distress. They can't harm you.

10c
IN U.S.A.

5 pleasing flavors

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Why Sure!
these Blue Jeans have everything



Hey! Authentic Western jeans for GIRLS, too! ALL SIZES 13.95

Guaranteed Satisfaction
Ruffles
OUT OF THE WEST
Authentic Cowgirl Denim

Fast, Effective Help for HEADACHE

Upset Stomach Jumpy Nerves

BROMO-SELTZER EFFERVESCES INSTANTLY... READY TO GO TO WORK FASTER THAN ANY TABLET PRODUCT I'VE EVER TRIED



Fight Headache 3 ways fast with Bromo-Seltzer and get really effective pain relief!

1. Relieves headache pain.
2. Neutralizes excess stomach acidity.
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For best results, use cold water. Follow the label, avoid excessive use. You must be satisfied or your money back. Get Bromo-Seltzer at your druggist's today. A product of Emerson Drug Co.

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COLUMBUS, OHIO



FREISTATT, MO.



NEW KNOXVILLE, O.



AMES, IOWA



HOLLYWOOD, CALIF.



ORLANDO, FLA.



APEX, N.C.



MINNEAPOLIS, MINN.



MEMPHIS, TENN.

Great American Churches

'CHRISTIAN CENTURY' HONORS 12 PROTESTANT CONGREGATIONS

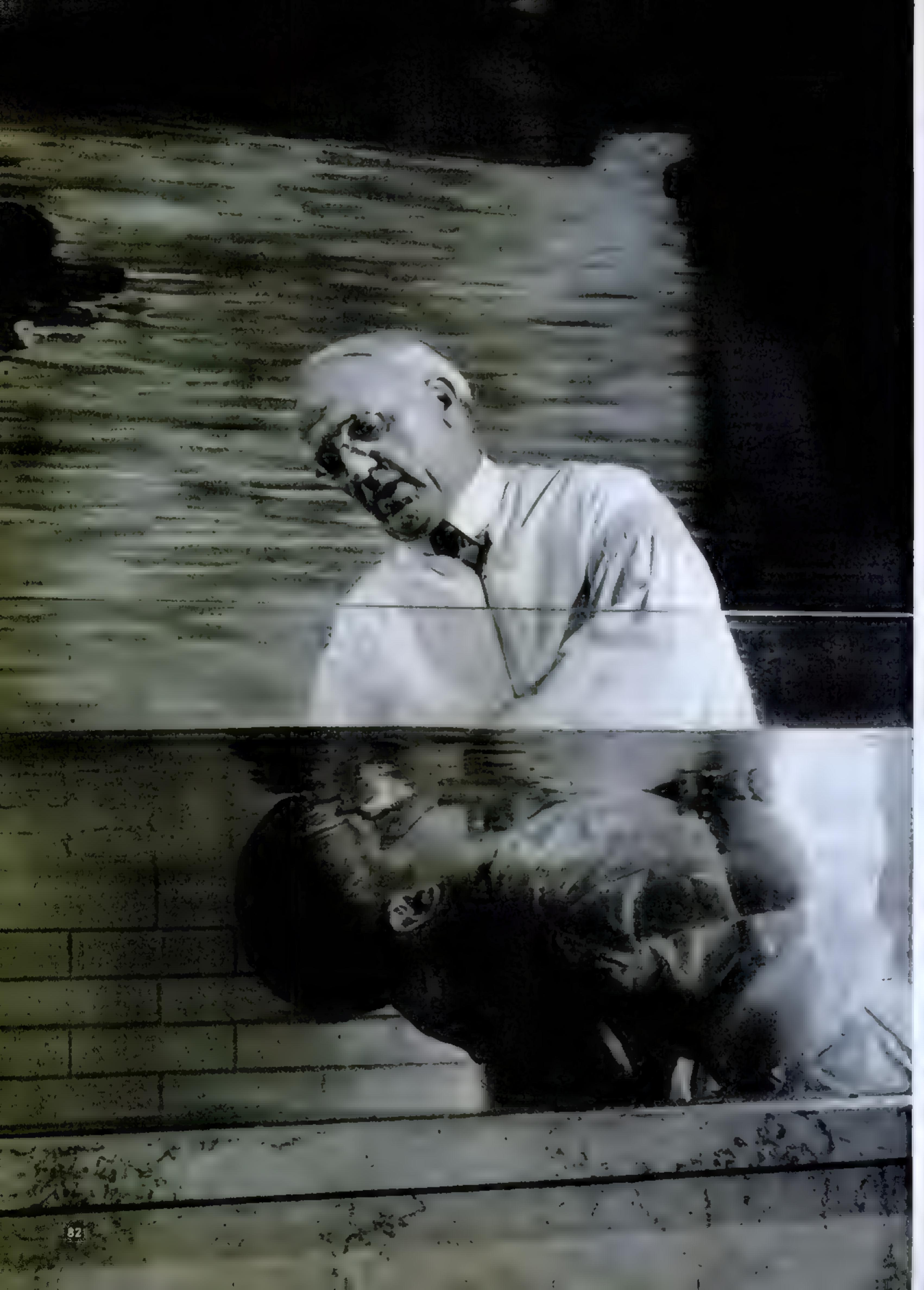
Just over a year ago *The Christian Century* magazine, an undenominational weekly, asked 100,000 Protestant ministers all over the U.S. to name the most successful churches in their area in 1) a large city, 2) a small city and 3) a village or open country. By adding up the votes and dividing the U.S. into four parts the editors produced 12 first choices. Then they sent a staff member to each church to find out what were the qualities that made each great. The results were published during the past year.

The 12 churches shown on these and the next six pages are astonishing testimony to the devotion of congregations and the leadership of ministers. More than this, they are heart-warming assurance of the nation's spiritual strength. The *Century's* editors, pointing out that most U.S. churches have some of the qualities exhibited so fully by the 12, say, "Each serves the nation because it insists that the nation shall look beyond itself to those elements in its heritage without which it cannot be saved." There is no one formula which brings success to a church, although few succeed without a fine minister. The results of success are easier to measure: they are found everywhere in the community.

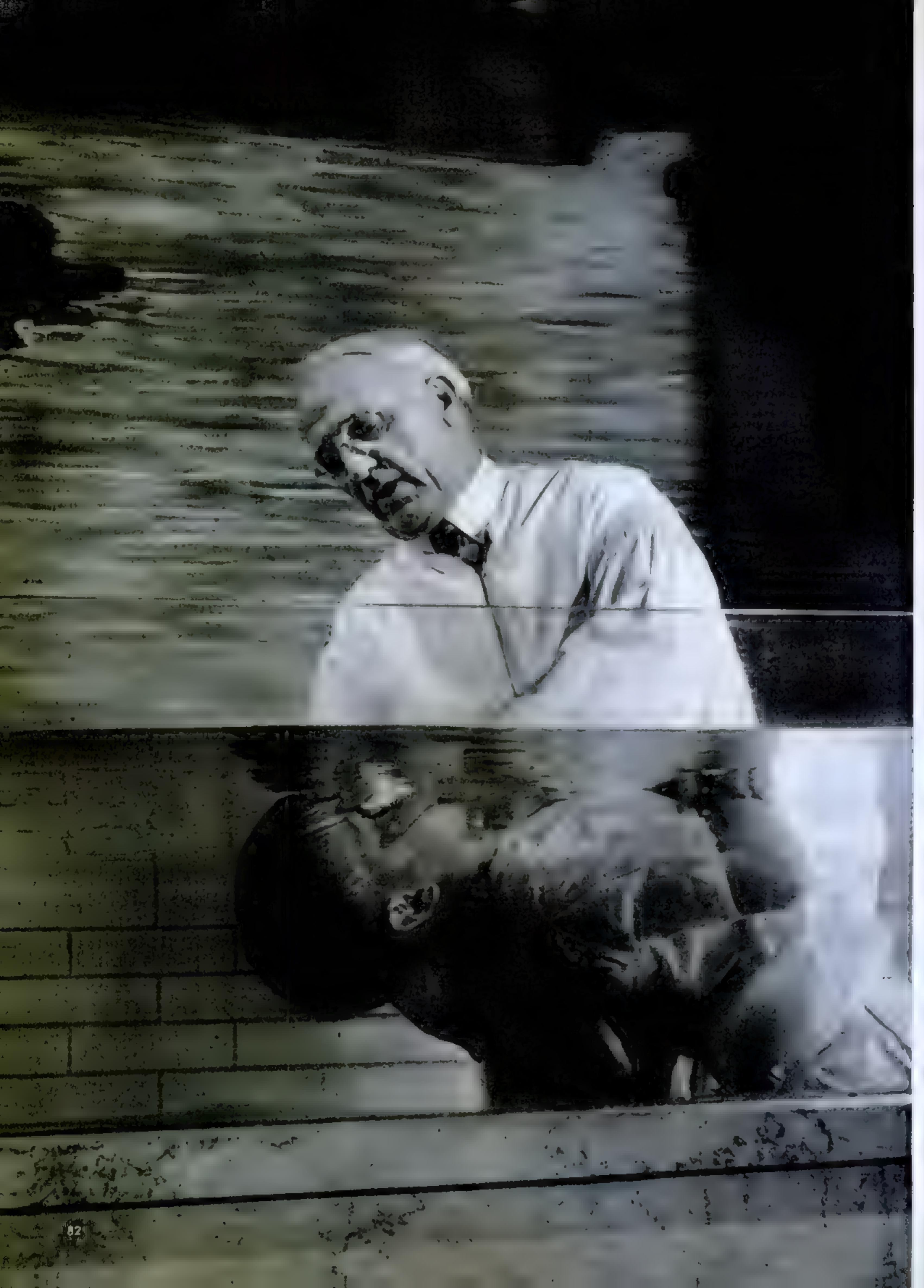
One of the 12, the Washington Prairie Evangelical Lutheran Church in Decorah, Iowa, is shown in its bucolic setting opposite. Serving a community of farmers of Norwegian ancestry, it encourages parents to bring their babies to church, requires children to face the congregation for questioning on the catechism, owns land which its pastor, Oscar E. Eugebretson, helps farm. Most of its parishioners are quick to identify themselves with it. Said one of them, "It's like it was right here on my farm. It's the first thing I see every morning when I come out on my way to feed the hogs."

DECORAH, IOWA









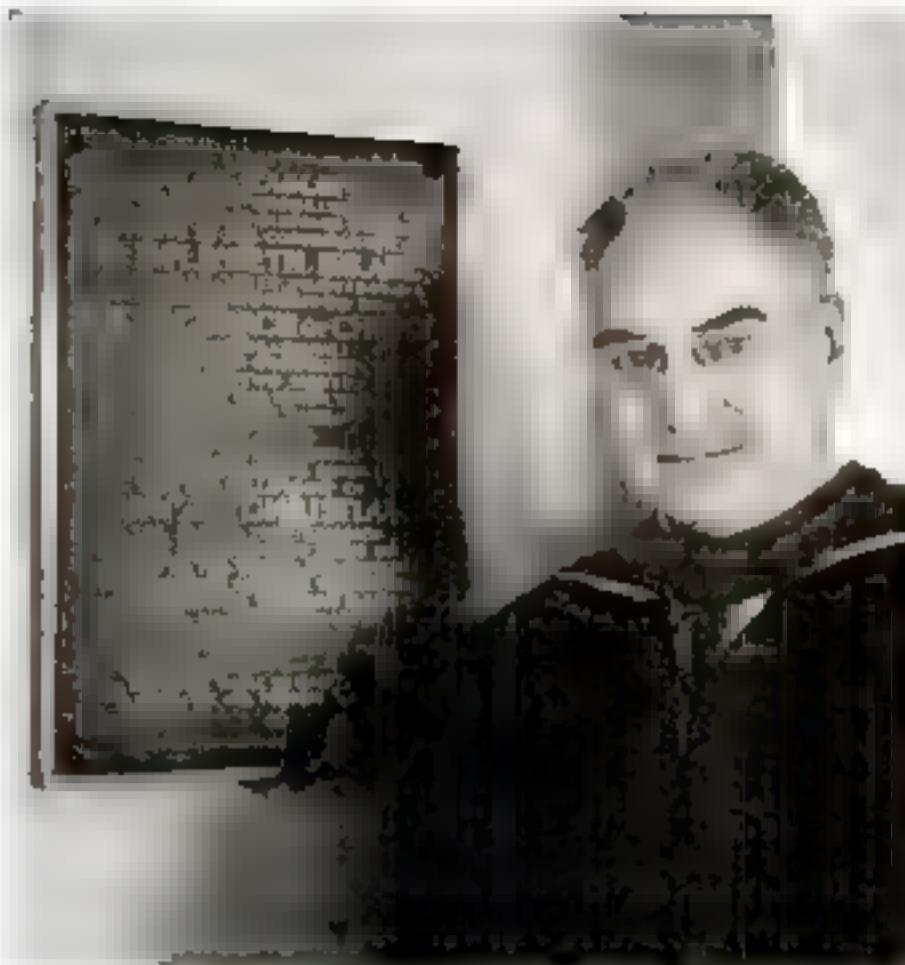


Olive Chapel Baptist
Apex, N.C.

Named for the Olive family which helped establish it a hundred years ago, Olive Chapel is in every sense the true rural church. Members help tend the park-like nine-acre church site. The Rev. Garland A. Hendricks (above), who left two months ago to take another post, is an outspoken advocate of contour plowing and soil testing and is currently chaplain of the state grange, whose local chapter meets in the church's community house. Its prosperous members sent Mr. Hendricks to Europe in 1947, once gave him an automobile as a present. Not long ago it gave its choir director a grand piano in recognition of two decades of service.

Bellevue Baptist
Memphis, Tenn.

There are so many activities at Bellevue Baptist in Memphis that *The Christian Century* gave up trying to work out a chart showing how they relate to each other. The church now has 8,266 members; new people have been added to the rolls for the past 22 years at the average rate of 12 a week. Dr. Robert G. Lee, who was born in a log cabin and preaches a hell-fire brand of fundamentalism famous in the South, is also president of the Southern Baptist Convention, turns back half his church salary to Bellevue. Here, in front of a painting of the River Jordan, he immerses 7-year-old Charles Fitzgerald in the church's glass-walled baptismal font.



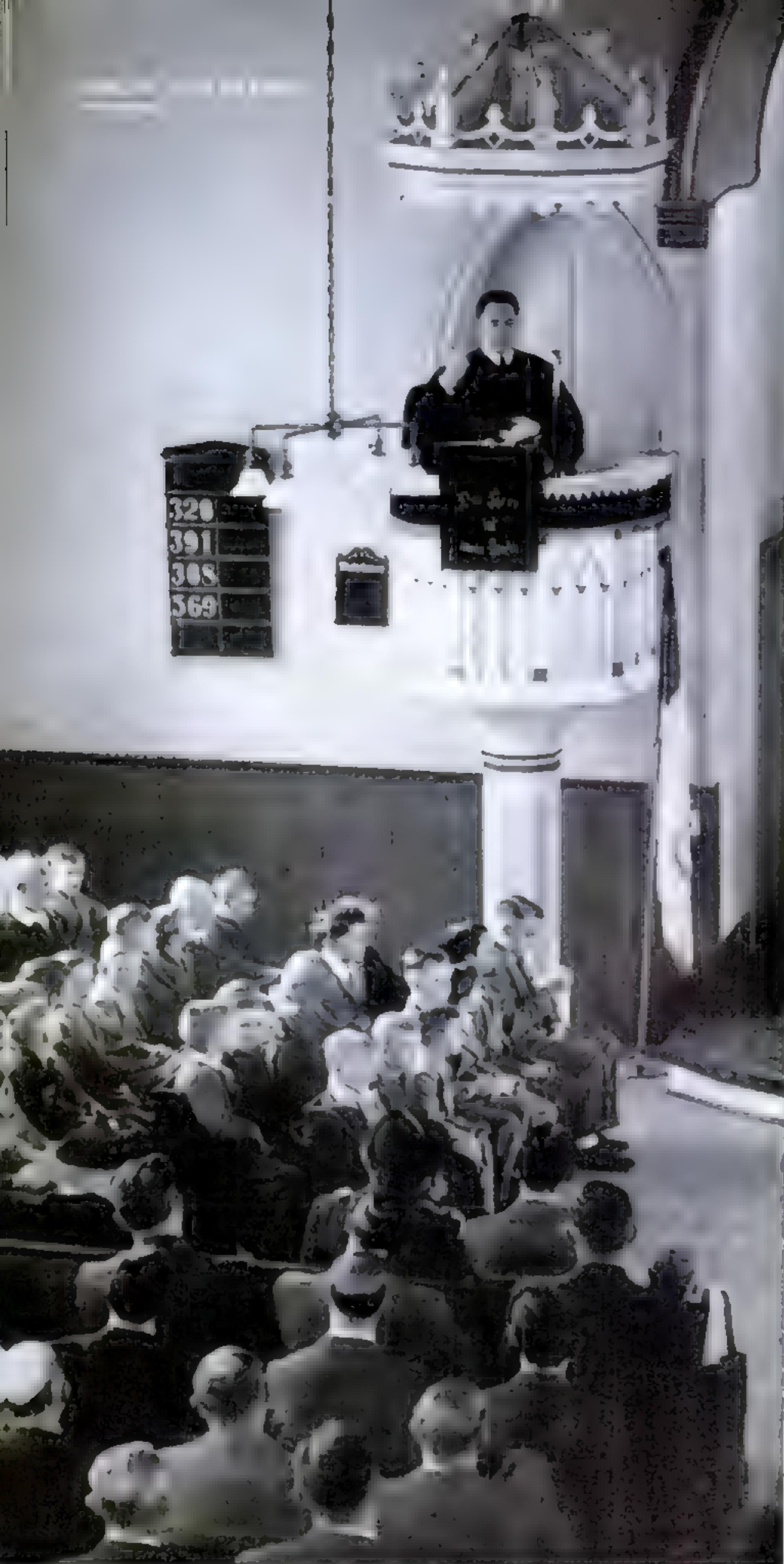
First Church of Christ (Congregational)
West Hartford, Conn.

When West Hartford's Congregational Church needed a new minister in 1937 it called an Indiana Quaker named Elden Mills. Mr. Mills, whom the *Century* calls "an informal whirlwind," often changes the printed order of service at the last moment, usually includes in the service a typically Quaker five minutes of silent meditation, otherwise follows orthodox Congregational practice. Under him a once-divided congregation has flourished, notably in its Sunday school (LIFE, Apr. 7, 1947). A tablet (above) pays tribute to a Jewish congregation whose temple First Church once used for 22 months when its own building had burned down.



Collegiate Methodist
Ames, Iowa

Fifteen years ago Collegiate Methodist was worse than bankrupt; it was \$140,000 in debt and could not even pay to have its furnace fixed. Then, after other men had turned it down, the post of minister was taken over by "Reverend Nick," as students from Iowa State College across the street call 57-year-old Dr. George S. Nichols. Today the debt has gone, and the church is expanding. A spellbinding preacher, Dr. Nichols says, "The unpardonable sin of the pulpit is dullness." He is also a firm pacifist but, though the church board disagrees with him, it proudly protects his right to speak out. Above, he leads a high school discussion group.



Trinity Lutheran, Freistatt, Mo.

So well grounded in the ways of its German-descended parishioners is Trinity Lutheran Church (membership, 800) that Freistatt has no public school; almost all the children in the community go to the church's

Christian day school. Twice a month, Pastor W. J. Stelzig (above) gives a German language service in addition to the English. In the past 20 years there have been no arrests in Freistatt—only one divorce.



First Community,

The members up (1,486) of First Community comprise 36 denominations. Under Dr. Roy Burkhardt, shown above (center, with book) at a television rehearsal, it is one of the most progressive churches in



Mount Olivet Lutheran, Minneapolis, Minn.

In the 13 years in which Reuben Youngdahl has been its pastor, Mt. Olivet has seen its membership catapulted from 13,000 to more than 6,000. Above are some of the new people who were received into the church as members at a special All Saints' Sunday service. Thirty-six-year-old Pastor Youngdahl, a brother of Minnesota's governor,

is supposed to time sermons by popping a cough drop in his mouth; when it dissolves, he stops (according to legend he does so only every time, discovered he had popped a lemon or by mistake). Members are urged to tell relatives of prospective parishioners; after baptism records are kept and persons not stay-aways are dropped from the rolls.



Columbus, Ohio

the U.S. It uses psychological tests to aid in adjusting teen age problems, gives premarital counseling, tries to foster understanding by encouraging young members to visit synagogues and Catholic churches.



First Presbyterian, Topeka, Kan.

Resisting the fate of many downtown churches whose members have moved away, First Presbyterian under Pastor Orlo Chogull has successfully appealed to young couples recently moved into town. Said one

man, "If someone had told me five years ago that I'd be breaking my neck to hear a regular Sunday sermon each week, I'd have said he was crazy. But that's just what I do." Above: one of the three choirs.

First Methodist
Orlando, Fla.

Because it is located in a town where many people go to spend their declining years, Orlando's First Methodist has some special problems. It maintains a thorough church school program for its young members but finds it must also devote increasing attention to its more elderly parishioners who, having plenty of spare time, like to spend a good deal of it at church. Adults make up more than half the total attendance at Sunday school classes. Its Businessmen's Bible Class (right) starts off Sunday mornings with a few lustily sung hymns accompanied by its own orchestra. The older men's Wesley Bible Class occasionally holds get-togethers at which members cook for each other. Over the past three years the church has annually given more than \$25,000 to Methodist missions.



Evangelical and Reformed
New Knoxville, Ohio

Although New Knoxville's population is less than 800, its Evangelical and Reformed Church has 1,365 members, and since most of these show up every Sunday, this presents a real parking problem for the town. The church's membership, most of whose ancestors came over from Germany in the early part of the 19th Century are mostly devout, prosperous farmers, who expect to be held morally responsible for the religious upbringing of their children. If as many as three pupils are absent from a catechism class like the one below (in which Pastor Dietrich A. Bode leads a responsive reading), the situation is viewed with alarm. Since farm income is irregular, church members do not use the familiar envelope to fulfil pledges but pay as they can at the local hardware store, whose proprietor is church treasurer. Since its sounding, the church has sent 12 men and women into the ministry.



First Presbyterian
Hollywood, Calif.

The five robed choirs of the Hollywood Presbyterian Church (right), shown with their director Dr. Charles Hirt, indicate the monumental size of this church, which LIFE described in an essay two years ago (Jan. 10, 1949). With almost 6,000 members, it is the largest Presbyterian church in the U.S. Applicants for membership are asked not whether but *how* they would like to work for the church; more than 25,000 file cards keep track of what each member is doing. The Sunday school enrolls more than 4,000 and has spilled over from the church and its own building into half a dozen residences, which the church has bought, and a public school building, which it rents for Sunday use. Parishioners crowd into the 1,700-seat auditorium three times Sundays to hear the preaching of Dr. Louis H. Evans, whose son just married Colleen Townsend, the movie star who gave up a career to serve the church (LIFE, Dec. 4). Although he is generally considered responsible for the church's solid growth, Dr. Evans says, "This isn't something I have done. This is something that has happened. I find myself standing completely off from myself while I watch in this church what the Lord is doing."

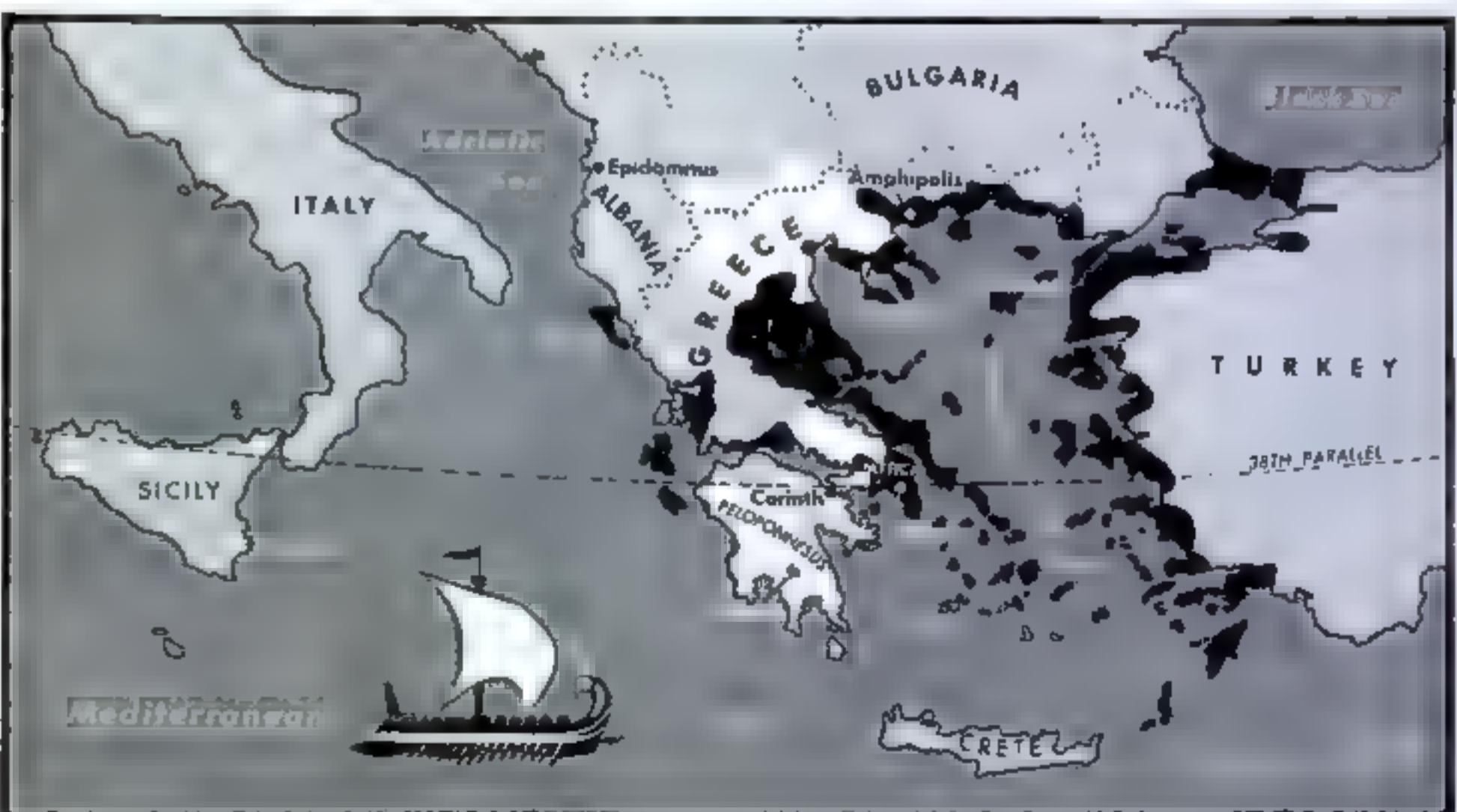


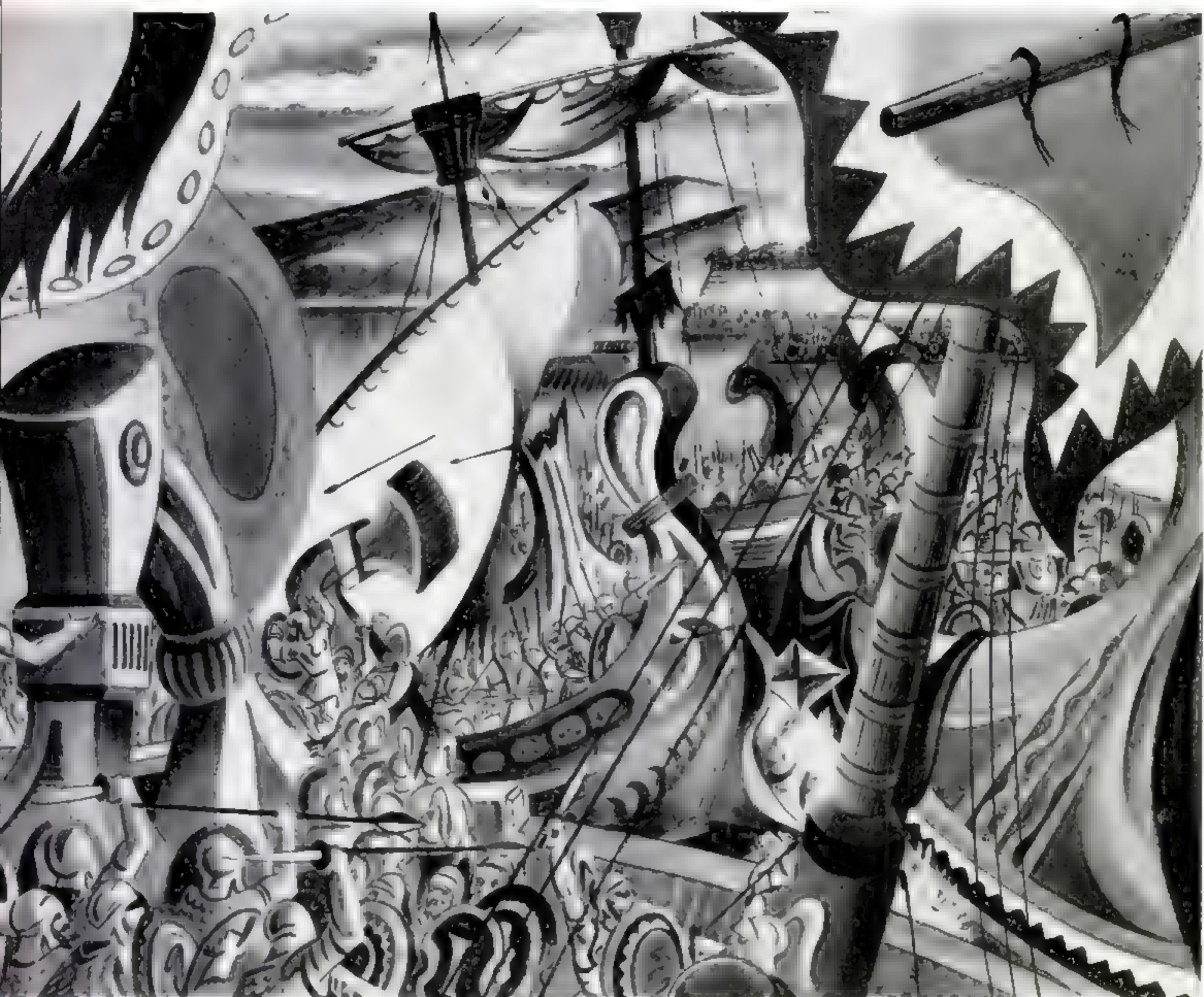


How a Democracy Died

by ROBERT CAMPBELL

THE GREEK WORLD consisted of hundreds of city states scattered around the eastern Mediterranean and Aegean seas and extending as far west as Sicily. Superimposed on a modern map of the area, the far flung empire held by Athens at the beginning of the war is shown in black. The tightly knit Peloponnesian League, which was led by Sparta, is shown in white. The neutral states and foreign countries are gray. The final decisive battles of the great Peloponnesian war took place at the farthest outposts of the Greek world—at Syracuse and the Hellespont.





A FATEFUL WAR BETWEEN ATHENS AND SPARTA POINTS UP THE DANGERS TO FREEDOM TODAY

THE world was divided, the combat was mortal and the issue in deep doubt. While the soldiers fought back and forth in savage seesaw across the 38th Parallel, most of the world's lesser states—although proclaiming with stubborn solemnity their sovereignty and independence—clustered in fear around one or the other of the two great powers. Of these two, one was a great democracy: rich in freedom, its citizenry proud to rule themselves. The other was a police state: compact, powerful, mobilized within and insulated against the outer world. Each so dedicated and so divided, their conflict far transcended a mere power war between nations. Riot and revolution, contemptuous of the state frontiers, blazed through the world. Neutrals fretted futilely as the flames licked near—and were consumed. This was humanity's great civil war. The world of 1950 could be so described

—but this was the state of the civilized world in the Fifth Century before Christ. It was the world of Greece, of the hundreds of city-states ringing the eastern Mediterranean and centering upon the Aegean Sea. Other cultures existed outside this world—Persia to the east, Egypt to the south—but they were either dead or dying, and this was history's chosen area. In this world Sparta, the great recalcitrant land power, and Athens, the sea power with its allies scattered at great distances, waged the Peloponnesian War. Only a while before, the two had been magnificent allies in repelling the great invasions from Persia. Now, sundered by mutual fear and hate, they fought for 27 years. The struggle consumed the whole Greek world. And a historian named Thucydides recorded in meticulous detail the graph of disaster.

To read Thucydides today is likely to be illuminating and certain to be disconcerting.

A GREAT NAVAL BATTLE in the harbor of Syracuse was a decisive factor in Athens' defeat by the Spartans. Beaked ships rammed each other while warriors fought from decks with spears and arrows.

A deadly parallel leaps to the mind. For here were two states, the most powerful in the world, which were not unlike the great protagonists of the mid-20th Century world. Here an embattled democracy fought for survival itself and, in the battle, betrayed all the strength and all the weaknesses belonging to a democracy in a death struggle. Here too was total war.

In some ways, it is true, the parallel seems almost eccentric (and we know that history does not consist of a series of pat and perfect analogies). Neither Athens nor Sparta was larger in area than Connecticut. They fought with swords and spears and sailing ships and whole armies that rarely exceeded 10,000 men. But the measure of history cannot be taken in square rods or firepower or simple numbers. This world of Greece was a whole civilization, and a majestic one. The people achieved triumphs unsurpassed 25

centuries later. They developed classic art and erected to it monuments as imperishable as the Parthenon. They wrote drama which has easily wooed 20th Century New York audiences away from their contemporary soporifics of the theater. They developed and wrote philosophy so mature and elevated that it surpassed all that came before and most that came after. They propounded and practiced democracy. So rich and vast was their achievement that the mind of 20th Century man can scarcely follow any line of inquiry—from the nature of justice and the duties of government to the meaning of ethics and the substance of art—without meeting at least one great Greek trudging back from the same journey.

And all this came to end. For another civilization seeking to save itself, it must be pertinent and meaningful to know how this happened, by what evils and by what failings.

The promise of glory

AFATEFUL half century fell between the Spartan-Athenian defeat of the Persian dream of world conquest and the war that tore the great city-states apart. The rout of the Persians (479 B.C.) seemed to promise the day of Hellas' greatest glory and freedom. In some ways the promise was fulfilled: the Greek allies went on to liberate Cyprus and Byzantium from Persian rule. Spartan arms were invincible. Triumphant Athens entered upon its golden age of Sophocles, Socrates, Pericles. In both states and through all the lesser states of the Greek world the dream of pan-Hellenic union, an abiding confederation of peaceful allies, seemed to rule men's minds as never before.

The rule faltered and the dream failed. It happened so, in large measure, because of the very natures of the states of Sparta and Athens. Sparta was ruled by an austere and militaristic citizenry, presiding over an enormous slave population acquired by conquest. Its laws, its beliefs, its internal and external plans were all geared to perpetuating that rule. Satellite states clustered around Sparta in fear or admiration of its power. But the restlessness of the oppressed was a constant threat to the state—and Sparta itself slowly grew to know fear. It dreaded the attractive force of free institutions, the contagion of freedom itself. Spartan citizens too long abroad showed deviationist tendencies. Alien visitors from less rigid and austere



FIGHTING SCHOLAR. Socrates (center) saved life of wounded Alcibiades (left) early in war. They fought side by side in campaigns, shared same tent.

lands seemed to propagate unrest among the people. Sparta grew more and more loath to see or to be seen.

Athens was a vastly different state, by both conviction and force of circumstance. Settling on a rocky and barren land, the fast-growing population long ago had been outward-looking in commerce and contact with other peoples. Lively trade reached south to Egypt, west to Sicily and Carthage, north and east through Asia Minor to the fertile fields by the Black Sea. To such a people common law, peace, confederation were economic as well as moral goods. It was as much a matter of prosperity as of principle. And such a state as Sparta, at once militarily strong and politically suspicious, seemed a menacing evil.

The menace seemed to be confirmed as the Greeks continued to liberate Asia Minor cities—and Sparta became less and less willing to participate in any common enterprises, more and more isolationist. The rout of the common enemy broke the strongest of bonds—common peril. Ancient distrusts came greedily alive again. After Sparta and her immediate satellites finally withdrew entirely from the alliance, the Athenians busily set to work building great defensive walls around their city. But who can be sure what act, what weapon is "defensive" when fear itself begins besieging all nations?

The dictates of fear

NOW the vicious circle spun faster and faster. Now, at all costs, the federation of pro-Athenian states must be cemented. The Delian League was born, with common headquarters and treasury on the island of

Delos. Each state had an equal vote, each contributed according to the wealth of each.

But was this to be a true league—or a thinly veiled Athenian empire? As the last vestiges of Persian influence were swept from the Aegean world, many members of the league, tired of war, perhaps of political responsibility itself, sought soft retirement to their own affairs. This Athens would not tolerate. With the Aegean now cleared, the promise of free and fruitful trade was richer than ever: the league must press on, expand, open new sea lanes. Exultant growth was the order of the Athenian day—and it must not be allowed to be clouded by the dark distrust of suspicious Sparta. Besides, were the league to contract or to crumble, the slumbering menace of Sparta might awake and strike. So whipped alternately by hope and fear, Athens tightened its grip on the league until it could no longer be said that these were allies pledged to one another by their lives, their fortunes and their sacred honor. The only pledge was power.

As the sickening fear of war spread across all Hellas, there appeared upon the Athenian political scene its greatest democratic leader: Pericles. He was a man of bright vision and cool competence. He grasped fully the compelling need for Greek union: collectively these people could be prosperous and free, but divided they could only end impoverished and enslaved. Athens—still a vigorous and daring democracy—could lead all Greeks toward this union.

For the Greek world the hour was perilously late. Pericles called a peace conference. To all states went delegations asking for an assembly at Athens. But, as Plutarch wrote laconically, "Nothing was effected; nor did the cities meet by their deputies, owing to the opposition of the Spartans." So deep was fear now that the peoples were even afraid to work for peace.

WHILE the two great powers continued to stare sullenly without striking directly at one another, the actual fighting began among satellites of Sparta and Athens. In different circumstances these first clashes might not have forced the final tragedy. But two basic facts were fatal: people had increasingly come to be paralyzed by their own acceptance of the inevitability of the great war, and the whole Greek world's power balance was so even that no event, however small, could occur without tipping the scales enough for all to see. So two incidents proved decisive. The first involved the Corcyrean colony of Epidamnus, suddenly torn by revolution. One party was supported by Corinth, a Spartan ally; the other party was aided by Corcyra, which naturally appealed



BESIEGED CITY of Plataea held out for two years after citizens tunneled under own wall and undermined ramp the Spartans were building to cross wall.

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REVOLUTIONS which later racked whole Greek world struck early in war in Coreyra, where the people imprisoned the rulers in a building, then tore the roof off and slaughtered inmates with arrows, stones.

ATHENS vs. SPARTA CONTINUED

to Athens. The Athenians had no sooner won the vicarious struggle than a second similar battle broke out, this time over Potidaea. Again the Athenians won, routing a Corinthian army. Beaten and enraged, Corinth appealed to Sparta to declare war. A conference of the allies met at Sparta. One Spartan named Archidamus made a final plea: "Let us never be elated by the fatal hope of the war being quickly ended. . . . I fear rather that we may leave it as a legacy to our children." It was a vain voice: the Spartan confederation voted for war.

Setting its strategy for war, Athens faced the anxious problems that always most acutely afflict a democracy. Boasting a strongly walled port which the Spartan armies could not hope to take by assault, Athens had no land army to match its enemy; at least initially its strategy had to be defensive. But the Spartans had a shrewd hope, for they knew the unreasoning pressures of public opinion which, once unleashed by crisis, can rage through a democracy and bring its ruin. Once Spartan armies began ravaging areas outside Athens, the maddened people could be expected to clamor for action, to force their leaders into the bold folly of meeting the enemy on his own terms.

Pericles saw the problem clearly. He knew that, with the Athenian fleet commanding the seas, providing the city and guarding most of the empire, the soundest plan was a slow, cautious war of attrition against Spartan territory. No valueless risks were to be taken in petulant indignation or for the sake of spurious prestige. Issues were to be joined and battles fought only where the might of Athens could be fully effective. This strategy demanded steady nerves. But only they could save Athens.

In the spring—it was 431 B.C.—the pattern of war was set. The Spartan armies invaded Attica for the first time, destroying the ripe corn. Watching from their walls, the enraged Athenians cried to rush out to the fight. Firmly Pericles held them in check, and instead dispatched 100 ships to ravage the Spartan lands. For many years the war was to be fought thus. But the very next year a plague devastated Athens, decimated the population, shattered morale—and took the life of Pericles. Time and again in the years ahead Athens was to betray all the agonies and asininity of a leaderless democracy.

This war was no conflict of neatly marshaled armies: it racked the whole world. The fires of revolution and social warfare now raged beyond

control. Partisans of the two great protagonists lashed every state into civil war. Wherever the people could get help from Athens, they struck from the underground against their rulers; Spartan allies, with Spartan help, fought back. "Revolution thus ran its course from city to city," Thucydides wrote, "and the places which it arrived at last, from having heard what had been done before, carried to a still greater excess the refinement of their inventions, as manifested in the cunning of their enterprises and the atrocity of their reprisals." And the blood that flowed so freely seemed also to rush to men's heads, cloud their brains and twist the meanings of all things. As the sad historian wrote, "Words had to change their ordinary meaning and to take that which was now given."

There came at last a lull, after 10 years of fighting. In 422 B.C. both Brasidas and Cleon, the outstanding Spartan and Athenian commanders, were killed in a single battle before Amphipolis. The armies and the peoples were weary of the fighting, at once so bloody and so inconclusive. A peace on more or less equal terms was concluded. It lasted seven years, but, as Thucydides wrote, it could not "be rationally considered a state of peace."

There was no lull, however, for a little neutral, the island of Melos, a Spartan colony which had stayed out of the fighting. To Athens, sick with its own sacrifices, the sight of so snug a neutral was a galling outrage. Moreover, might its mere existence not encourage faint-hearted allies to quit the struggle, from fatigue if not from fear? An Athenian squadron descended upon the island, demanding its entry into the war. When the Melians stoutly refused, the Athenian reply was terse: "As you have staked most on, and trusted most in, the Spartans . . . so will you be most completely deceived." Whereupon the conquerors put to death all men they took, sold the women and children for slaves. The Athenian dream of Pericles was fast losing luster.

The playboy and the philosopher

INTO the last act of Greece's tragedy went the wildest, most varied elements: brashness and criminal timidity, steadfast devotion and sudden treason, fierce austerity and heedless self-indulgence. And dominating the whole scene was the elegantly attired figure of the most oddly intriguing Athenian of them all—Alcibiades. Here was a man whose character and temperament were exaggerated in all dimensions, the super-Athenian

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HOW MANY PEOPLE READ LIFE

Audience reached by	No. of People
One issue	23,950,000
Two issues	34,400,000
Three	41,100,000
Four	45,850,000
Five	49,550,000
Six	52,500,000
Seven	54,900,000
Eight	56,900,000
Nine	57,900,000
Ten	59,350,000
Eleven	60,600,000
Twelve	61,650,000
Thirteen	62,600,000

From "A Study of the Accumulative Audience of LIFE" conducted for LIFE by Alfred Politz Research, Inc.



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*due to colds



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AT SYRACUSE, before the last great sea battle, Nicias urges the Athenians to fight bravely, reminding his forces they are "all that is left of . . . Athens."

ATHENS vs. SPARTA CONTINUED

in virtue and in vice; handsome, intelligent and proud, dissolute, extravagant and unstable, ostentatious and immensely competent. The splendor of his clothes bordered on vulgarity. His orgies were the longest and most violent Athens ever knew. His brilliance and perception won hosts of friends—and outraged enemies in equal number. And this most extravagant of Athens' playboys had only one friend whom he regarded as his superior, one who warmly returned his affection and admonished his passions: the ugly and saintly little philosopher Socrates. In battle they fought side by side, and on separate occasions each saved the other's life. In Athens there was no stranger sight—none more weirdly suggestive of a world out of joint—than that of the stocky, slovenly little philosopher many a night prowling the streets of the city, peering inquisitively past his lantern, to find and rescue his elegant friend, the hope of Athenian democracy, from some monumental drunk.

Probably only an Alcibiades would have pursued the gaudy gamble of the expedition to Sicily. Some 400 miles west of Athens, Sicily was far beyond the arena of war. Yet it was characteristic of Athenian insight to perceive the enormous relevance and value of the great island, rich in resources and dotted with colonies sympathetic to Sparta. If this great prize could be brought to the Athenian side, the course of the whole struggle might be decisively changed. The hope captured the imagination of Athens; the insistence of the people, once stirred, ran riot. The critical opposition of the general Nicias, a sober leader, was merrily forgotten. So, too, were Pericles' old, simple maxims of caution.

The armada finally assembled was "by far the most costly and splendid Hellenic force that had ever been sent out by a single city up to that time." Into it went the best of the Athenian army and navy. To watch its departure all Athens came to the port, and throughout the fleet mass prayers and libations were offered. But behind all the piety the heart of Athens had a troubled pulse. For one recent morning it had been discovered that all the little stone figures of the god Hermes, throughout the city, had been mutilated the previous night. Was this ill omen the blasphemous work of drunken reveling friends of Alcibiades himself? His enemies were sure it was so. As Athens' leader sailed off—with the reluctant Nicias beside him—he left behind a doubting and divided people.

The fiasco that followed was born of all the conflicts and vacillations of a nation that has lost its nerve and purpose. Arriving in Sicily, Alcibiades and Nicias clashed on strategy precisely as the temperaments of the two men dictated: Nicias wanted to dare little more than a show of force and limited aid to some local Athenian allies, while Alcibiades called for a grand assault on Syracuse itself, the island's key city and Sparta's principal ally. No sooner had Alcibiades' plan been finally accepted than he himself departed: on the home front his enemies had seized advantage of his absence, charged him with impiety and induced the Assembly into issuing his recall. En route to face the charges, Alcibiades calculated that public opinion at home would now be so aroused against him that many who recently idolized him would welcome his execution. He escaped his ship, fled to Sparta and treasonously revealed the Athenian expedition's plans—in time for reinforcements to be dispatched directly to Syracuse.

"The greatest Hellenic achievement"

NOTHING could have been more incongruous than the timid Nicias now grappling to execute the bold scheme of an Alcibiades. He spent many months deliberating and delaying. Finally he laid belated siege to Syracuse. Month after month the reinforced defenders bettered their position. Strategy dictated withdrawal, but now Nicias, like Alcibiades, was snared in his own fear of public opinion at home and grimly concluded that his life depended on a military victory. The capricious exigencies of domestic politics were now supreme on the battlefield. At last Nicias found his fleet of 110 ships pinned down in the great harbor near Syracuse by the enemy's counterblockade. He tried bravely to break the trap. He was beaten and his 40,000 men set out on a painful retreat across the land, as the enemy clawed their march fiercely. And Thucydides wrote, "This was the greatest Hellenic achievement of any in this war, or, in my opinion, in Hellenic history; at once most glorious to the victors and most calamitous to the conquered. They were beaten at all points and altogether. All that they suffered was great . . . everything was destroyed, and few out of many returned home."

Athens knew nothing of the disaster for days. Then a stranger arrived in the city and, sitting in a barber shop, murmured casually of what he assumed all Athenians already knew. In instant panic the barber rushed from his shop to the Assembly. He was disbelieved and put on the rack as a disturber of the peace. But shortly other reports came, and a stunned and fearful people released the poor barber who had tormented them with the truth.

Now the tragedy became most fearful for, though its end was inevitable and known, it took seven years to creep to its close. (It was now that Thucydides for unknown reasons—perhaps overwhelmed by his own sorrow, perhaps because he knew the rest was inescapable—broke off his history, leaving it to be finished by Xenophon.) With a kind of spiritless tenacity the Athenians hung on. Ever more volatile and vacillating in their adversity, they recalled Alcibiades. When he failed to wring a miracle of victory from a lost war, they banished him again—and this time he went 150 miles away to his castle near the Hellespont.

Here, seven years later, Alcibiades watched the last sorry scene. He saw one day the whole of the remaining Athenian fleet, 180 ships,

CONTINUED ON NEXT PAGE



UNDERWATER SWIMMERS, towing behind them skins filled with poppy seed and honey, supplied Spartan garrison trapped by an Athenian squadron.

oh-oh, Dry Scalp!



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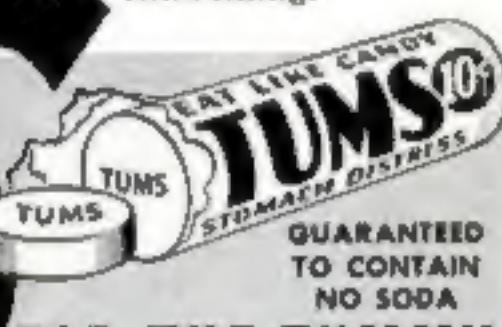
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ATHENS vs. SPARTA CONTINUED

drop anchor below him. They had been chasing the Spartan navy, under Lysander, around the Aegean, without being able to engage it in battle. The next morning they sailed out, found Lysander lying nearby and sought to provoke him into battle. Though his fleet was completely manned and ready to move, Lysander ignored the challenge. It was repeated on four successive mornings, and ignored. Each day, however, upon returning, the frustrated Athenians left their ships to forage through the countryside for provisions, each day grew more careless in their movements. From his castle Alcibiades saw the danger and sent a warning; the Athenians greeted it with contempt. The next morning, when the Athenians had returned and left their ships, Lysander threw his whole armada against them. In the slaughter that followed only nine ships escaped, among them the sacred galley *Paralus*.

"It was night," wrote Xenophon, "when the *Paralus* reached Athens with her evil tidings, and a bitter wail of woe broke forth. From Pireaus, following the line of the long walls up to the heart of the city, it swept and swelled, as each man to his neighbor passed on the news. On that night no man slept."

By sea and land the beaten democracy was now blockaded and slowly reduced to starvation. The angriest of Sparta's allies, such as Corinth, urged the total obliteration of the city. Sparta decided to be a little more temperate: Athens must destroy her walls and limit her fleet to 12 vessels. Athens could only yield—"and so they fell to leveling the fortifications and walls with much enthusiasm, to the accompaniment of female flute players, deeming that day the beginning of liberty to Greece."

It was the beginning of the death of Greece.

Why Sparta survived

WHAT had shattered the dream of one world at peace that seemed so near reality when the Persian invaders were beaten back and western civilization could once again breathe and hope?

No doubt the mere existence of a Sparta—isolated, toughly self-sufficient, taut with fear of all things alien—was enough in itself to keep the world asunder. So long as such a Sparta survived, there could be neither peace nor unity. But this does not explain why Sparta *did* survive as a triumphant police state, why her destructive will prevailed. For there is no law of history decreeing that the forces of disunion are automatically stronger than those of union, that whoever fears order and universal law shall succeed in destroying both.

Athens—democracy itself—failed. Pericles, the wisest of the Athenian leaders, knew it might be so. "I am more afraid," he said, "of our own blunders than of the enemy's devices."

The blunders were many, and some were grievous. The people, to begin with, were prone to presume not only the inevitability of war but also the inevitability of victory. Rational fear of war was not backed by realistic fear of defeat, for it was not pleasant to accept the fact that, as Thucydides observed, "war of all things proceeds least upon definite rules."

The Afflictions of democracy

AND even Athenian plans were not very good. Athens failed to grasp the most elemental principles about the free association of nations. For the bond of principle it substituted the bond of power. Fear and exigency led it into the illusion that allies which had been won by coercion would have the stamina of allies won by conviction. In its own fear it failed to appreciate the deep, instinctive fear of lesser states of being exploited by their grander ally. So proud was Athens of its own democratic institutions (and with much justice) that it forgot (with very little justice) that all the different peoples of the world might not revere them equally.

And, once at war, Athens suffered from the worst afflictions that can beset a democracy. It displayed, in annihilating the Melians, a capacity to copy its enemy at his worst. And, in the making of their own decisions, its people broke the reins of reason, lusted for grandiose action. Their leaders faltered, winced and took action affecting the fate of the world under the heedless lash of frenzied opinion, screaming for the gaudiest gesture and the cheapest victory.

Many men have thought that these were apt lessons for later democracies. At any rate the tragedy of Athens—whatever its deepest sources—clearly enough demonstrates the vanity of any democracy so foolish as to believe that, because its intentions are good and its institutions honorable, it had achieved sure immortality.

This, perhaps, was what General George Marshall had in mind when, not long after the conclusion of World War II, he observed, "I doubt seriously whether a man can think with full wisdom and deep convictions regarding certain of the basic international issues today who has not at least reviewed in his mind the period of the Peloponnesian War and the fall of Athens."



ATHEN'S FALL came after 27 years of warfare. The walls of the great city were pulled down by Athenians under the direction of triumphant Spartans.

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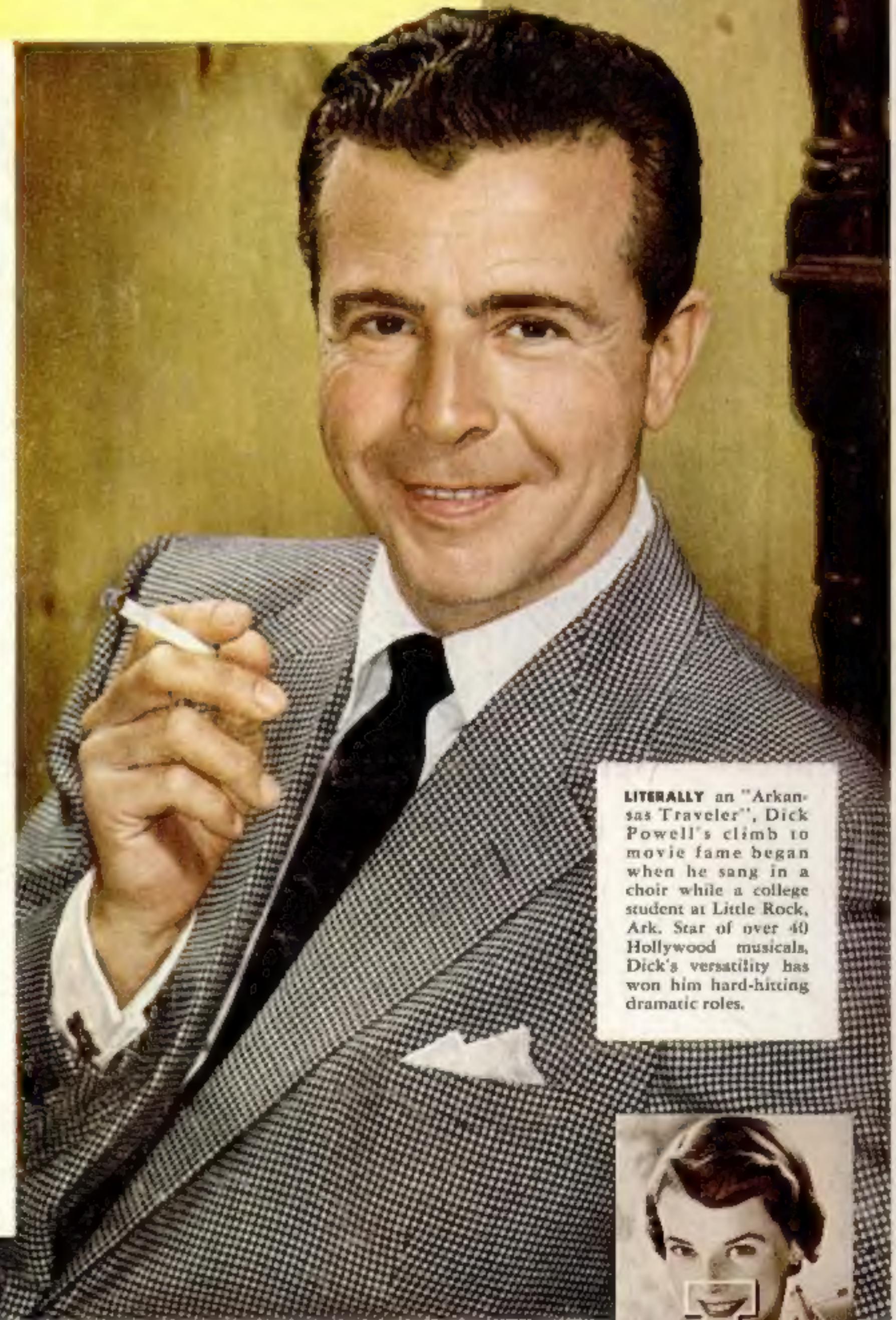
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